ATTACHMENT PTA-XVIII - ADJACENT PROPERTY OWNER NOTIFICATION

As required by §9 VAC 20-81-460.I., a written notice has been sent to all adjacent property owners or occupants. A signed statement, a typical copy of the notice, and the names and addresses of those to whom the notice were sent are included. In addition, Cumberland County notified adjacent property owners during the conditional use and rezoning process. This information is also included for reference.

ATTACHMENT PTA – XVIII
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
ADJACENT PROPERTY OWNER NOTIFICATION

GREEN RIDGE RECYCLING AND DISPOSAL FACILITY, LLC
Adjacent Property Owner Certification Statement

Pursuant to §9 VAC 20-81-460.I. of the Virginia Solid Waste Management Regulations (VSWMR, 9 VAC 20-81-10 et seq.) this document constitutes a statement by Green Ridge Recycling and Disposal Facility, LLC that written notice has been sent to all owners or occupants of the property adjacent to the proposed Green Ridge Recycling and Disposal Facility to be located in Cumberland County. The applicant relied on the notifications sent by Cumberland County during the rezoning and conditional use permit activities which required that the adjacent property owners be notified. A list of names and addresses of the adjacent property owners or occupants along with a sample copy of the notification letter has been included with this statement.

Green Ridge Recycling and Disposal Facility, LLC

Signed:_____ Date 1-14-2020

Title: President & Manager

Mailing Address: 12230 Deer Grove Road, Midlothian, VA 23112

Cell Phone: 802-379-1575

Email address: jerry.cifor@myfairpoint.net

31-A-1	676	AMERICAN TIMBERLAND LLC	1180 PEACHTREE ST, NE	SUITE 1810	ATLANTA, GA	30309	2135.294	0	VACANT			
37-A-63	13140	MARTIN, BLAKE AUBRE & DEIDRE D.	448 PINEGROVE RD		CARTERSVILLE, VA	23027	77.454	2011	DWELLING	CONV	CARTERSVILLE	PINEGROVE RD
37-A-68	1264	JEFFERSON, LEONA, ET ALS	C/O VALERIE MURPHY	112 FAIRWAYS CRESCENT	CARMEL, NY	10512	43.19	0	VACANT			
37-A-70	9539	AGEE, SUNNY MARTIN & MARTIN, EDWARD	3679 ELLISVILLE DR		LOUISA, VA	23093	293.254	1868	DWELLING	CONV	CARTERSVILLE	PINEGROVE RD
38-A-2	6400	PARKER, CHARLES LESTER, ET ALS	11 RITA DR		MOUNT SINAI, NY	11766	186.8	0	VACANT			
38-A-6	3578	TERRY, JAMES	300 MILLER LN		CUMBERLAND, VA	23040	19.28	1990	DWELLING	CONV	CUMBERLAND	MILLER LN
38-A-6-B	16980	GREEN, RICHARD C., JR. & PEMBERTON,	246 MILLER LN		CUMBERLAND, VA	23040	37.6	2001	DWELLING	CONV	CUMBERLAND	MILLER LN
38-A-6-D	17245	CEMETERY GILLIAM				0	1	0	CEMETERY			
44-A-12	6329	MARABLE, GEORGE	C/O ADRIENNE D. GRIST	531 MAIN ST #411	NEW YORK CITY, NY	10044	25	0	VACANT			
44-A-15	13829	OULIE, KEITH M.	PO BOX 51		CUMBERLAND, VA	23040	74.65	0	VACANT			
44-A-18	14180	SCOTT, HOWARD ESTATE	C/O ERLENE SCOTT BARRETT	1124 PARLIAMENT LAKE DR	COLUMBIA, SC	29223	102.88	1880	DWELLING	CONV	CUMBERLAND	PINEGROVE RD
44-A-39	16301	BISE, JACKSON D.,JR. & JONATHAN D.	1828 BOYER RD		POWHATAN, VA	23139	128	0	VACANT			
44-A-52	18995	BISE, JACKSON D.,JR. & JONATHAN D.	1828 BOYER RD		POWHATAN, VA	23139	45	0	VACANT			
45-1-16	5089	MANAGE THIS, LLC	5825 CARTERSVILLE RD		POWHATAN, VA	23139	2	2002	DWELLING	DUPLEX	POWHATAN	LILY DR
45-1-16-A	18153	MANAGE THIS, LLC	5825 CARTERSVILLE RD		POWHATAN, VA	23139	3.05	2002	DWELLING	DUPLEX	POWHATAN	LILY DR
45-1-30-A	18554	GREEN, LARRY S. & SHARON R.	2365 MOSBY RD		POWHATAN, VA	23139	0.07	0	VACANT			
45-1-32	18159	GATES, JOSEPHINE E.	12600 OLD BUCKINGHAM RD		MIDLOTHIAN, VA	23113	2.36	0	VACANT			
45-1-36-A	15372	CROWDER, ROY H.	2379 MOSBY LN		POWHATAN, VA	23139	2.002	2010	DWELLING	CONV	POWHATAN	MOSBY RD
45-1-37	12578	BELCH, ROBERT G.	2377 MOSBY LN		POWHATAN, VA	23139	4.46	1982	DWELLING	DOUBLEWIDE	POWHATAN	MOSBY RD
45-1-38	11374	GREEN, LARRY S. & SHARON R.	2365 MOSBY RD		POWHATAN, VA	23139	4.48	0	IMPROVED			
45-2-1-A	1282	CLARK, DAVID T. & ELIZABETH K.	62 MILLER LN		CUMBERLAND, VA	23040	2	1997	DWELLING	SINGLEWIDE	CUMBERLAND	MILLER LN
45-2-1-A1	18178	CLARK, DAVID T. & ELIZABETH K.	62 MILLER LN		CUMBBERLAND, VA	23040	2.468	1996	DWELLING	SINGLEWIDE	CUMBERLAND	MILLER LN
45-2-1-A2	18589	CLARK, DAVID T. & ELIZABETH	62 MILLER LN		CUMBERLAND, VA	23040	0.48	0	VACANT			
45-2-3-B	6646	CLARK, DAVID T., JR.	PO BOX 744		POWHATAN, VA	23139	17.296	0	VACANT			
45-2-3-C	17145	BOOKER, ELOUISE M, ET ALS	2503 VINEYARD LN		CROFTON, MD	21114	5	1996	DWELLING	DOUBLEWIDE	CUMBERLAND	80 MILLER LN/82 MILLER LN
45-2-3-E	17635	CLARK, DAVID T.	62 MILLER LN		CUMBERLAND, VA	23040	16.098	0	VACANT			
45-2-3-E1	18350	CLARK, DAVID T., JR.	62 MILLER LN		CUMBERLAND, VA	23040	2.866	2004	DWELLING	CONV	CUMBERLAND	MILLER LN
45-A-2-A	5736	GILLS, STEVE A.	192 MILLER LN		CUMBERLAND, VA	23040	1	1988	DWELLING	MODULAR	CUMBERLAND	MILLER LN
45-A-2-G	18322	GILES, MICHAEL L., II	202 MILLER LN		CUMBERLAND, VA	23040	2	2007	DWELLING	CONV	CUMBERLAND	MILLER LN
45-A-2-G3	18671	CASHION, BRUCE	21701 SAPPONY RD		MOSELEY, VA	23120	2	2007	DWELLING	CONV	CUMBERLAND	MILLER LN
45-A-4-A	18070	GUNNARSSON, RAGNAR	57 ADLER LN		CUMBERLAND, VA	23040	76.18	0	VACANT			
45-A-6	8919	JAMES, CORA	5 ALDER LN		CUMBERLAND, VA	23040	0.5	1958	DWELLING	SINGLEWIDE	CUMBERLAND	ALDER LN
45-A-8-A	9236	SCALES, JEFFREY C.	1359 CARTERSVILLE RD		CARTERSVILLE, VA	23027	10.001	2003	DWELLING	SINGLEWIDE	CUMBERLAND	128 MILLER LN/130 MILLER LN
45-A-8-A1	18187	HOBSON, JESSE	PO BOX 352		CUMBERLAND, VA	23040	4.416	2003	DWELLING	MODULAR	CUMBERLAND	14 ALDER LN
45-A-8-B	17814	HARVELL, JAMES CHRISTIAN	RR5 BOX 1882		COALGATE, OK	74538	0.476	0	VACANT			
45-A-9	887	CLARK, DAVID THOMAS, TRUSTEE	62 MILLER LN		CUMBERLAND, VA	23040	15	0	VACANT			

Jerry Cifor
Green Ridge Recycling and Disposal
Facility, LLC
12230 Deerhill Road
Midlothian, VA 23112
December 13, 2019

American Timberland LLC
1180 Peachtree Street, NE
Suite 1810
Atlanta, GA 30309

RE: Application for Solid Waste Management Permit

Green Ridge Recycling and Disposal Facility with the Virginia Department of Environmental Quality

Tax Map Nos. 45-1-41, 45-1-40, 45-2-2-B, 45-2-2-A, 44-A-21, 44-A-22, 44-A-36, 44-A-13, 44-A-14, 44-A-19A, 45-A-7, 44-A-19, 44-A-20, 45-A-1, 38-A-7, and 37-A-69

Dear Sir/Madame:

Pursuant to § 9 VAC 20-81-460.I of the Virginia Solid Waste Management Regulations (VSWMR or Regulations), this letter serves as written notice to all owners or occupants of adjacent properties that Green Ridge Recycling and Disposal Facility, LLC ("Green Ridge") intends to construct and operate a solid waste management facility, involving a municipal (sanitary) landfill and related uses, on property located in Cumberland County on the north side of Route 60 near the Powhatan County line and described as Tax Map Nos. 45-1-41, 45-1-40, 45-2-2-B, 45-2-2-A, 44-A-21, 44-A-22, 44-A-36, 44-A-13, 44-A-14, 44-A-19A, 45-A-7, 44-A-19, 44-A-20, 45-A-1, 38-A-7, and 37-A-69 ("Property"). The Property has a total area of approximately 1,117.63 acres.

On June 28, 2018, after notice to adjacent property owners and public advertisements, Green Ridge received zoning and a Conditional Use Permit (CUP) from the Cumberland County Board of Supervisors for the construction and operation of a sanitary waste management facility and related uses on the Property.

This letter serves as notice and is to inform you that Green Ridge will be submitting a Part A Application to the Virginia Department of Environmental Quality to site a new landfill on the aforesaid Property. You are being notified because according to Cumberland County records, your property is adjacent to the proposed landfill Property.

If you have any comments or questions regarding this matter, please feel free to contact me at (802) 379-1575 or jerry.cifor@myfairpoint.net.

Jerry Cifor, President
GREEN RIDGE RECYCLING
AND DISPOSAL FACILITY, LLC

{2669289-1, 120356-00002-05}

Cumberland County Planning Commission
Adjacent Property Owner Notification
Rezoning Application
Notification mailed June 1, 2018
Public Hearing date June 14, 2018

Owner Name	Owner Street Address	Owner City/State Address
American Timberland	1180 Peachtree St., NE	Atlanta, GA 30309
Edward Ray Martin	530 Pinegrove Rd	Cartersville, VA 23027
Blake Aubre & Diedre D. Martin	448 Pinegrove Rd	Cartersville, VA 23027
William & Cordel Wade	11 Portage Rd	West Hartford, CT 06117
Leona Jefferson et. al. c/o Wade Cordell	11 Portage Rd	West Hartford, CT 06117
Sunny Martin Agee, Roberts Samual, Jr. & Edward Ray Martin	3679 Ellisville Dr	Louisa, VA 23093
Eliz P & Mrs Bernard C N Cocke c/o Harding & Carbone	1235 North Loop West, Ste 205	Houston, TX 77008
Charles Lester Parker et al	11 Rita Dr	Mount Sinai, NY 11766
Susie Lightfoot c/o Florine Doughty	10054 E Albert Ct	Chesterfield, VA 23832
James Terry	300 Miller Ln	Cumberland, VA 23040
Linda L Green Trustee	264 Miller Ln	Cumberland, VA 23040
Richard C Green, Jr & Niko Pemberton	246 Miller Ln	Cumberland, VA 23040
W Garland & Sue Ellen Bailery	2268 Anderson Hwy	Cumberland, VA 23040
David A Toth	32 Brown Rd	Cumberland, VA 23040
Curtis W Daugherty	21438 Courtland Oaks St	Katy, TX 77494
CMH Homes, Inc	5000 Clayton Rd	Maryville, TN 37804
Joseph H, Jr & Janie Marie Franklin	274 Brown Rd	Cumberland, VA 23040
Keith M Oulie	PO Box 51	Cumberland, VA 23040
George Marable c/o Adrienne D Grist	531 Main St #411	New York City, NY 10044

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Pine Grove Comm Ctr Trustee c/o Rev Muriel Miller Branch	3677 Forest Haven Dr	Richmond, VA 23234
Howard Scott Estate c/o Erlene Scott Barrett	1124 Parliament Lake Dr	Columbia, SC 29223
Jerry West	1117 Old Buckingham Rd	Powhatan, VA 23139
Hubbard A & Barbara A Sprouse	60 Miller Ln	Cumberland, VA 23040
Steven M & Vincent K Matthews	2717 Main Sail Ct	Henrico, VA 23233
Janice Nash Goode	327 Dry Bridge Rd	Farmville, VA 23901
Morris L Nash, For Life	327 Dry Bridge Rd	Farmville, VA 23901
Shon C Goode	14125 Bermuda Point Ct	Chester, VA 23831
Toni N Jenkins	30 Liberty Ln	Cumberland, VA 23040
Christopher W Loftis	97 Pinegrove Rd	Cumberland, VA 23040
Roberta H Miller	103 Pinegrove Rd	Cumberland, VA 23040
D Sherwoord Haddon, Jr	1995 Judes Ferry Rd	Powhatan, VA 23139
David Roy & Leslie Marie Diming	101 Pinegrove Rd	Cumberland, VA 23040
Jackson D, Jr & Jonathan D Bise	2620 Anderson Hwy	Powhatan, VA 23139
B&Q Properties LLC	2701 Pineridge Ln	Powhatan, VA 23139
Manage This, LLC	5825 Cartersville Rd	Powhatan, VA 23139
Larry S & Sharon R Green	2365 Mosby Rd	Powhatan, VA 23139
Josephine E Gates	12600 Old Buckingham Rd	Midlothian, VA 23113
Garland, Jr & Vickie Lee Isom	2375 Mosby Rd	Powhatan, VA 23139

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Roy H Crowder	2379 Mosby Rd	Powhatan, VA 23139
Robert G Belch	2377 Mosby Rd	Powhatan, VA 23139
Ellis M Palmore Lumber, Inc	2575 Ballsville Rd	Powhatan, VA 23139
David T & Elizabeth Clark	62 Miller Ln	Cumberland, VA 23040
David T Clark, Jr	PO Box 74	Powhatan, VA 23139
Elouise M Booker et all	2503 Vineyard Ln	Crofton, MD 21114
David T Clark	62 Miller Ln	Cumberland, VA 23040
Sivandand Subramanian & Chadalavada Nagajyothi Pillai	11416 Abbotts Cross Ln	Glen Allen, VA 23059
Valco Investments, LLC	913 Scotch Pine Ct	Sandston, VA 23150
Randolph George Scott, Sr	PO Box 351	Cumberland, VA 23040
Jacob E Milburn	6678 Blenheim Rd	Powhatan, VA 23139
Elmer J & Faye N Heis	PO Box 271	Powhatan, VA 23139
Ken Broadwater Homes, LLC	99 Rhodes Ln	Cartersville, VA 23027
Clifton C & Kimberley White	1 Anderson Hwy	Powhatan, VA 23139
George M, III & Rebecca A L Hatch	15 Anderson Hwy	Powhatan, VA 23139
Mark J Poole	29 Anderson Hwy	Powhatan, VA 23139
William D & Wayne T McCraw	31 Anderson Hwy	Powhatan, VA 23139
Alethia Renee Gregory Hobson	206 Miller Ln	Cumberland, VA 23040
Steve A Gills	192 Miller Ln	Cumberland, VA 23040

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John L Wade	PO Box 282	Cumberland, VA 23040
Bruce T Allen	224 Miller Ln	Cumberland, VA 23040
William Matthew Hatcher	200 Miller Ln	Cumberland, VA 23040
Michael L Giles, II	202 Miller Ln	Cumberland, VA 23040
Phillip R Gentile, III	204 Miller Ln	Cumberland, VA 23040
Bruce Cashion	21701 Sappony Rd	Mosely, VA 23120
Lloyd R & Gertrude O Crenshaw	208 Miller Ln	Cumberland, VA 23040
Sandra Cline	16 Alder Ln	Cumberland, VA 23040
Ragnar Gunnarsson	57 Alder Ln	Cumberland, VA 23040
Cora James	5 Alder Ln	Cumberland, VA 23040
Jeffrey C Scales	1359 Cartersville Rd	Cartersville, VA 23027
Jesse Hobson	PO Box 352	Cumberland, VA 23040
James Christian Harvell	RR % Box 1882	Coalgate, OK 74538
David Thomas Clark Trustee	62 Miller Ln	Cumberland, VA 23040
Theodore L Voorhees	3834 Old Buckingham Rd, Ste A	Powhatan, VA 23139

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Randolph George Scott, Sr	PO Box 351	Cumberland, VA 23040
Jacob E Milburn	6678 Blenheim Rd	Powhatan, VA 23139
Elmer J & Faye N Heis	PO Box 271	Powhatan, VA 23139
Ken Broadwater Homes, LLC	99 Rhodes Ln	Cartersville, VA 23027
Clifton C & Kimberley White	1 Anderson Hwy	Powhatan, VA 23139
George M, III & Rebecca A L Hatch	15 Anderson Hwy	Powhatan, VA 23139
Mark J Poole	29 Anderson Hwy	Powhatan, VA 23139

Adjacent Property Owner Notification
Conditional User Permit Application
Notification mailed June 12, 2018
Public Hearing June 28, 2018

Owner Name	Owner Street Address	Owner City/State Address
William D & Wayne T McCraw	31 Anderson Hwy	Powhatan, VA 23139
Alethia Renee Gregory Hobson	206 Miller Ln	Cumberland, VA 23040
Steve A Gills	192 Miller Ln	Cumberland, VA 23040
John L Wade	PO Box 282	Cumberland, VA 23040
Bruce T Allen	224 Miller Ln	Cumberland, VA 23040
William Matthew Hatcher	200 Miller Ln	Cumberland, VA 23040
Michael L Giles, II	202 Miller Ln	Cumberland, VA 23040
Phillip R Gentile, III	204 Miller Ln	Cumberland, VA 23040
Bruce Cashion	21701 Sappony Rd	Mosely, VA 23120
Lloyd R & Gertrude O Crenshaw	208 Miller Ln	Cumberland, VA 23040
Sandra Cline	16 Alder Ln	Cumberland, VA 23040
Ragnar Gunnarsson	57 Alder Ln	Cumberland, VA 23040
Cora James	5 Alder Ln	Cumberland, VA 23040
Jeffrey C Scales	1359 Cartersville Rd	Cartersville, VA 23027
Jesse Hobson	PO Box 352	Cumberland, VA 23040
James Christian Harvell	RR % Box 1882	Coalgate, OK 74538
David Thomas Clark Trustee	62 Miller Ln	Cumberland, VA 23040
Theodore L Voorhees	3834 Old Buckingham Rd, Ste A	Powhatan, VA 23139

ATTACHMENT PTA-XIX - PUBLIC INTEREST SERVED

A. REGULATORY REQUIREMENTS

Under the Part A submittal requirements (9VAC20-81-460.K) the applicant for a new solid waste management facility must provide indication that the public interest will be served in one or more of the categories identified in the regulation which include:

1. Cost effective waste management for the public within the service area comparing costs of a new facility or facility expansion to waste transfer, or other disposal option;
2. The facility provides protection of human health and safety and the environment;
3. The facility provides alternatives to disposal including reuse or reclamation;
4. The facility allows for the increased recycling opportunities for solid waste;
5. The facility provides for energy recovery or the subsequent use of solid waste, or both thereby reducing the quantity of solid waste disposed;
6. The facility will support the waste management needs expressed by the host community; or
7. Any additional factors that indicate that the public interest would be served by the facility.

The service area for this facility (Facility) is defined via the Host Agreement between the Cumberland County Board of Supervisors and Green Ridge Recycling and Disposal Facility LLC (Green Ridge) approved by the Board on August 2, 2018 as amended on July 11, 2019. In that agreement, the service area is identified as by a 500-mile radius from the Facility excluding the states of New York and New Jersey.

Cumberland County as the host community has indicated its approval of the proposed Facility believing that it will be beneficial to the community and that it will serve the public. Specifically, three items have been cited in the benefits to the community:

Item 1: Cost Effective Waste Management

Cumberland County has been seeking options to mitigate the expenses of its solid waste program for years. In 2006, the County believed that it had an opportunity with Republic Waste Industries to mitigate these costs with Republic opening a landfill in Cumberland. The County also built a new school in anticipation of the Republic landfill. However, this opportunity fell through and Repbulic has withdrawn its permits. As a result, the County sought options to offset its costs and replace the expected revenue from the proposed Republic landfill upon which it was so heavily relying.

To highlight the need, reference is made here to the County's solid waste management plan which outlines the need for cost effective waste management. The local solid waste management plan (SWMP) covers a region defined as Prince Edward County and Cumberland County. Key statements from the SWMP relevant to this discussion include the following:

- "*The planning district within which Prince Edward and Cumberland Counties are part of is described as: "one of the most economically challenged regions in the State of Virginia."* (Page 5)
- *"Both Prince Edward County and Cumberland County are largely rural with few large industries and manufacturing facilities."* (Page 5)
- *"Scarcity of higher paying salaries continues to impact in a negative manner, a locality's or region's primary source of income – its tax base. This in turn, often inhibits growth in the locality or region because investments in needed infrastructures do not happen or are slow to occur."* (Page 7)
- *Environmentally-sound solid waste management within the two counties remains a significant public function that demands a continuing allocation of resources.* (Page 7)
- *"Along with highways, railroads, water, wastewater, schools and healthcare providers, well run and funded waste management facilities are an attraction to industrial, commercial and residential development. "* (underlining added for emphasis) (Page 7)

As reflected in the County's SWMP, Cumberland County needs the Green Ridge Facility because it will provide the County with substantial and much needed revenues, jobs, and relief for the solid waste expenses of Cumberland County, thereby serving the local public interest.

In addition, the County's Host Agreement with Green Ridge outlines numerous ways in which the Cumberland County public will be served. Some of the ways that the public will be served as identified in the Host Agreement include (but are not limited to) the following:

- Section 1.6 – Convenience Center at landfill for free disposal by residents; drop off recycling center
- Section 1.7 – Free disposal for County government facilities
- Section 2.1 – Host Fees – based on tonnage and unit cost per ton
- Section 2.2 – Initial fees of $100,000 to defray costs for negotiations
- Section 2.3 – Annual contribution - $25,000 for environmental and science public education or other activity as may be agreed upon by both parties.
- Section 2.4 – Recreational Facilities Contribution and Economic Opportunities – reversion of at least 25 acres to the County at the time of closure for public use; annual payment of $25,000/year for promotion of economic development; promotion of a training program with the community college system

- Section 3.1 – Landfill Liaison – reimbursement of up to $100,000 per year for an employee who will inspect landfill operations

(Green Ridge would note that the anticipated total annual revenue to Cumberland County from the Green Ridge facility should be approximately 3 million dollars, which represents almost 20% of the County's current annual budget.)

Item 4: Increased Recycling

Cumberland County will be working with Green Ridge to enhance the County's recycling program. Funding under Section 2.3 of the Host Agreement and additional recycling at the landfill will allow the County to broaden its vision for recycling and expand services to the community. Without the support of Green Ridge (monetarily and operationally), Cumberland County simply could not afford to consider such enhancements. The increased recycling opportunities that Green Ridge would support will serve the public well.

Item 6: Facility Will Support Waste Management Need of Host Community

The Cumberland County Comprehensive Plan outlines a number of goals and objectives for theCumberland community. Under Community Facilities, Objective 6 states*: "Develop and maintain appropriate public utilities to support current and future growth of all types in Cumberland County."* (Page 103) Policy 6.e states, *"Develop and maintain appropriate and cost effective solid waste management facilities, services and programs to serve the needs of citizens, businesses, industries and the environment."* The Green Ridge project (convenience center, recycling and disposal), as well as revenues generated by the project will help the County meet these objectives in addition to other goals outlined in the Cumberland Comprehensive Plan.

In short, Cumberland County firmly believes that the interests of the public will be served through the implementation of this project and has therefore supported it through the rezoning and conditional use permit approvals as well as a letter of written support urging DEQ's approval of Green Ridge's permit request.

B. LOCAL SUPPORT

In support of this project the following communities have provided letters of support or expressed interest in future capacity:

- Cumberland County – July 13, 2019
- CVWMA – June 28, 2019
- Hanover County – September 9, 2019
- Ashland – December 2, 2019

- Chesterfield County – December 3, 2019
- Rappahannock Regional Solid Waste Board – December 6, 2019
- Botetourt County – December 10, 2019
- Appomattox County – December 1, 2019

Copies of these letters are attached.

C. BROADER INTEREST SERVED

The public interest in the broader service area will alsobe well served by the Green Ridge Facility as outlined in the Preliminary Statement and Demonstration of Need included in Green Ridge's Notice of Intent. Key ways in which the broader public interest will be served include:

- As indicated in the Preliminary Statement and Demonstration of Need in the Notice of Intent, solid waste disposal for Cumberland County is a drain on its limited resources. The Green Ridge facility will offer relief to the County in a number of ways, including reduced disposal and recycling costs, as well as substantial revenues from the host fee and jobs. Cumberland County <u>needs</u> this project and actively supports it.

- Relative to the Cumberland/Prince Edward Region, Cumberland County currently transfers to the Shoosmith Landfill whose future expansion is under litigation; Prince Edward County operates its own landfill with a reported remaining life of 6 years. Thus, the Green Ridge landfill will support this region's solid waste plan once permitted and constructed.

- Contiguous solid waste regions rely heavily on private sector facilities which may or may not be able to support their 20 year goals. Region 2000 has less than 20 years of remaining life and at this time it appears highly doubtful that an expansion will be allowed by the host community. Green Ridge will support this region. In addition, members of the Central Virginia Waste Management Authority, which includes Henrico, Hanover, Goochland, Powhatan, Chesterfield Counties (to name a few), rely heavily on the Shoosmith and Old Dominion landfills, which will reach capacity in the next 20 years (Shoosmith will likely close within the next 3-4 years in light of a recent adverse court decision). The CVWMA therefore has expressed interest in the guaranteeing disposal capacity in the Green Ridge landfill.

- From Initiation of a project to its construction, an increase in landfill capacity can take at least 5–6 years (or longer depending on the project). Capacity is always being consumed. New capacity will always be needed. Green Ridge will provide that needed capacity.

- Several major disposal facilities are currently struggling with local politics and land use issues relative to expansions, including the Shoosmith Landfill, the East End Landfill, and Region 2000. In addition, DEQ has revoked the permit of the Tri-Cities Landfill because of reoccurring violations. Many are rightly concerned about the loss of Shoosmith capacity and its ripple effects through Central Virginia because Shoosmith lost a recent circuit court case involving Chesterfield County's denial of a local certification needed to expand into Shoosmith's proposed quarry cell. Other localities, such as Amherst County, have determined not to utilize their remaining capacity, but to move to a transfer operation

followed by landfill closure. There may be other facilities making decisions that impact available capacity. Green Ridge's capacity will therefore serve the greater good as capacity continues to be lost.

- Many public sector landfills have defined (restricted) service areas and cannot accept waste from out of their service area. This capacity is therefore not available to others in Virginia and should not be a factor in the 20 year calculation. Green Ridge will fill such voids in capacity.
- Tipping fees and disposal costs for local governments are determined by competition and available capacity. Currently, only two companies control almost all of the private waste disposal capacity in Virginia. The Green Ridge facility is needed to increase competition.
- County Waste of Virginia, which will utilize the Green Ridge Recycling and Disposal Facility, currently serves over 237,000 residential accounts as well as VCU, University of Richmond, Liberty University, Lynchburg University, Frito Lay, DuPont, Altria and a plethora of Central Virginia home builders and home owner associations. Without the Green Ridge facility, costs to these entities will increase with the increased distance to a disposal facility and increased tipping fees because of the loss of competition. Indeed, this is already happening. VCU just procured disposal services which increased in 2019 from $18.89/ton to $44.30/ton, a reflection purely of cost increased in disposal and the loss of competition in the industry in Virginia.
- Fuel costs will continue rising. Each additional mile traveled will cost citizens of the Commonwealth dollars and increase carbon footprints. The Green Ridge Facility is exceptionally positioned to effectively and efficiently serve the Central and Southwest Virginia region.
- The Green Ridge facility will be open to all localities in Virginia. It is not exclusive like most public landfills. As public landfills reach capacity and as the costs to own and operate a public landfill increase, localities in Virginia will be seeking alternative disposal capacity that is cost effective. Green Ridge will be able to provide such cost effective capacity.
- An assured, cost effective waste disposal system is needed for economic development. Green Ridge will expand the options for commercial and industrial development through its hauling, recycling, and disposal operations.
- The Northeast is in the midst of a crisis vis a vis its disposal capacity, and will need additional options for disposal of its waste. Virginia is likely to get inundated by out-of-state waste as a result, making the need for the Green Ridge project that much more stark.
- As explained at length in Green Ridge's Preliminary Statement to the Demonstration of Need, it is anticipated that within 3-4 years, 99% of Virginia's private landfill capacity will be controlled by just two companies. The Green Ridge facility will not only provide much needed waste disposal capacity, but also will create much needed competition, lowering

waste disposal costs for local and state governments as well as citizens and businesses in the Commonwealth.

County of Cumberland Virginia

1 Courthouse Circle |
P.O. Box 110
Cumberland. Virginia 23040
Telephone 804 492 3800
Facsimile 804 492 9224
cumberlandcounty.virginia.gov

July 13, 2019

Mr. James Golden, Regional Director
Virginia Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060

Mr. Jason Miller, Land Protection Manager
Virginia Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060

Re: Green Ridge Recycling and Disposal Facility
Part A Application – PTA Attachment XIX – Discussion of Public Interest Served

Dear Mr. Golden and Mr. Miller:

Cumberland County is writing this letter to provide information and support for the Part A application of Green Ridge Recycling and Disposal Facility, LLC (Green Ridge) for the construction and operation of a municipal sanitary landfill in Cumberland County. Specifically, Green Ridge must address how the public interest will be served by the landfill, a matter which was considered by Cumberland County officials upon deliberating the Green Ridge rezoning and the conditional use permit applications. The Board of Supervisors of Cumberland County, supported by staff, specifically considered the following items which also are considerations for your Department under 9VAC20-81-460.K:

1. **Cost effective waste management:** Currently Cumberland County spends in excess of $600,000 per year for the hauling and disposal of its solid waste. This cost is a significant percentage of our local revenues, which total just under $13,000,000, and constitutes the county's greatest single contractual expense. The Board, when considering the facility, discussed the benefit that a local municipal solid waste facility will provide, not only to Cumberland County, but also to other localities which will be able to use the facility. Tipping fees appear to be on the rise, which could only be exacerbated by reducing solid waste disposal capacity in the Commonwealth. In short, Cumberland County, like all localities, must plan now for efficient and low-cost solid waste disposal solutions for the future. In fact, this consideration has been so important to Cumberland County planning that the Cumberland County Comprehensive Plan even provides in pertinent part that one objective of the county is to "[d]evelop and maintain appropriate and cost effective solid waste management facilities, services and programs to serve the needs of citizens, businesses, industries and the environment." The Green Ridge project will help the county achieve this objective.

2. **Increased recycling opportunities**. Cumberland County is committed to maximizing recycling opportunities for citizens and providing services to assist with environmental quality in the county. For example, once, and sometimes twice, each year, the county hosts a tire collection day. Citizens are encouraged to bring old tires to be recycled, with each citizen being permitted to bring, free of charge, up to one hundred tires. In addition, recycling containers are provided for citizens at each solid waste collection site. And toward the goal of increasing recycling efforts, Cumberland County ensured that there was language in the Green Ridge Host Agreement for the continued provision of recycling containers and services (paragraph 1.6) and funding for environmental and science education. Finally, and because the county continues to explore ways to encourage recycling, staff is exploring with a private partner an opportunity to optimize the recycling of plastic, which Green Ridge representatives have committed to support as well.

3. **Support the waste management need of the host community**. Management of solid waste is the second greatest total departmental expense in Cumberland County, second only to the sheriff's department. Because the Green Ridge facility will provide disposal of the county's solid waste at no charge, leaving only the hauling for the county to be responsible for, the facility will provide a significant benefit to the county's budget. Disposal fees will be eliminated, and the expectation is that hauling will cost significantly less as the hauling distances will be reduced greatly. Further, construction of the Green Ridge facility will ensure not only a less expensive disposal option, but also will ensure that there is, in fact, a disposal option available at all. Upon the publication of the county's last request for bids for the provision of solid waste disposal service, only three companies, including Green Ridge affiliated company County Waste, expressed an interest in bidding. It is not uncommon for there to be only one or two bidders for services in Cumberland County, which has become a constant and growing concern, not just for the disposal of solid waste, but for many services the county needs. However, because the disposal of solid waste is an absolute need, not to mention an environmental concern, the county places high importance on identifying an environmentally responsible manner in which to dispose of its municipal solid waste for decades to come. The Green Ridge facility will ensure the County will have that option at a manageable cost.

In closing, the Board of Supervisors of Cumberland County, Virginia approved on June 28, 2018 the Green Ridge rezoning and conditional use permit applications for the construction and operation of a municipal sanitary landfill. On August 2, 2018, the Cumberland County Board of Supervisors approved a Host Agreement with Green Ridge, which agreement was amended on July 11, 2019. Cumberland County supports the Green Ridge facility in Cumberland County because the County assumes that with oversight by the Virginia Department of Environmental Quality, the facility will be constructed and operated in an environmentally responsible manner. Cumberland County consistently endeavors to work collaboratively with state agencies, and this project is no exception. The County is grateful for the expertise and assistance of DEQ on this and all projects and requests support and assistance in return on the Green Ridge project. We thank you.

Sincerely,

Vivian Seay Giles, J.D., LL.M.
County Attorney| County Administrator

CVWMA
CENTRAL VIRGINIA
WASTE MANAGEMENT AUTHORITY
2100 West Laburnum Avenue, Suite 105, Richmond, Virginia 23227 • 804/359-8413 • Fax 804/359-8421 • www.cvwma.com

June 28, 2019

Jerry Cifor
Green Ridge Recycling and Disposal Facility, LLC
12230 Deerhill Road
Midlothian, VA 23112

RE: Central Virginia Waste Management Authority (CVWMA)
Landfill Capacity Reserve Letter for Green Ridge Recycling and Disposal Facility, LLC

Dear Mr. Cifor:

On behalf of the thirteen member jurisdictions of the CVWMA (Counties of Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, Powhatan and Prince George, the Town of Ashland and the Cities of Colonial Heights, Hopewell, Petersburg and Richmond), please accept this letter as the response to your letters of May 1, 2019 to CVWMA member localities regarding the opportunity for CVWMA member jurisdictions to reserve disposal capacity in the proposed Green Ridge Recycling and Disposal Facility, LLC (Green Ridge).

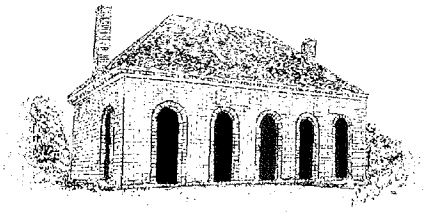
CVWMA is in the process of updating the regional Solid Waste Management Plant (SWMP), and as a part of that process is evaluating its solid waste disposal needs for the next 20 years. While currently and for the foreseeable future there is adequate landfill airspace to accommodate our disposal needs in the region for the next twenty years, should the Green Ridge Landfill obtain a solid waste permit to operate from the Commonwealth of Virginia, jurisdictions of the CVWMA may need capacity in the future and would like to retain the ability to deliver municipal solid waste to the Green Ridge Landfill. CVWMA or member localities cannot at this time enter into a contract that stipulates or guarantees delivery or reservation of landfill capacity, until such time as deemed necessary and is procured in accordance with the Virginia Public Procurement Act.

One jurisdiction of the CVWMA, the County of Chesterfield, would like to specifically note that they generate approximately 35,000 tons of solid waste annually that could be delivered to the Green Ridge landfill at some point in the future. This is not a guarantee of tonnage and would require that a procurement be completed before a formal commitment could be made to Green Ridge Landfill.

If you have any questions regarding this letter, please do not hesitate to contact me at 804-612-0552.

Sincerely,

Kimberly A. Hynes
Executive Director



HANOVER COURTHOUSE

HANOVER COUNTY

ESTABLISHED IN 1720

COUNTY ADMINISTRATOR'S OFFICE

CECIL R. HARRIS, JR.
COUNTY ADMINISTRATOR

FRANK W. HARKSEN, JR.
DEPUTY COUNTY ADMINISTRATOR

KATHLEEN T. SEAY
DEPUTY COUNTY ADMINISTRATOR

JAMES P. TAYLOR
DEPUTY COUNTY ADMINISTRATOR

WWW.HANOVERCOUNTY.GOV

P.O. BOX 470, HANOVER, VA 23069
7516 COUNTY COMPLEX ROAD, HANOVER, VA 23069

PHONE: 804-365-6005
FAX: 804-365-6234

September 9, 2019

Green Ridge Recycling and Disposal Facility, LLC
Attn: Mr. Cifor
12230 Deerhill Road
Midlothian, Virginia 23112

Re: Landfill Capacity Reserve Letter – Hanover County

Dear Mr. Cifor:

Hanover County currently generates approximately 51,600 tons of Municipal Solid Waste annually. By 2023 we anticipate this amount to increase to approximately 55,850 tons. We are currently committed to a contract for disposal and hauling through 2023. Before that contract ends, we will need to re-procure services for both disposal and hauling. Regionally, there will likely be reduced options for disposal as we approach that important procurement due to facilities reaching capacity or otherwise closing and therefore an additional option is important.

Hanover County would like to preserve the option of disposal at the Green Ridge Recycling and Disposal Facility for future procurement. We believe adequate capacity will allow for healthy competition within the marketplace, which is important as we approach the 2023 horizon. This use of the Green Ridge Recycling and Disposal Facility is contingent upon the results of a successful bid through a competitive solicitation process in accordance with the Virginia Public Procurement Act.

We appreciate the opportunity to be considered as a potential future user of the Green Ridge Recycling and Disposal Facility. If there are any questions regarding this request, please let me know.

Sincerely,

Cecil R. Harris, Jr.
County Administrator

Hanover: People, Tradition and Spirit

Town of Ashland
Center of the Universe

101 THOMPSON STREET
P.O. BOX 1600
ASHLAND, VIRGINIA 23005-4600

TELEPHONE (804) 798-9219
FAX (804) 798-4892

December 2, 2019

Green Ridge Recycling and Disposal Facility, LLC
ATTN: Mr. Jerry Cifor
12230 Deerhill Road
Midlothian, VA 23112

RE: Landfill Capacity Reserve Letter – Town of Ashland

Dear Mr. Cifor,

The Town of Ashland currently generates approximately 1800 tons of Municipal Solid waste annually. We anticipate the amount of solid waste generated annually to increase to approximately 2000 tons by 2024. Our current contract for disposal and hauling services runs through June of 2024. Before the current contract ends, we will need to go through the procurement process for both disposal and hauling services.

The Town of Ashland would appreciate having the option of using the Green Ridge Recycling and Disposal Facility for our municipal solid waste disposal needs as we go through the competitive bid process. We do have a need regionally for more landfills in the future and having options should keep our pricing down.

Therefore, we would appreciate the ability to be considered as a future user of the Green Ridge Recycling and Disposal Facility. If you have any questions regarding this request, please let me know.

Respectfully,

Joshua Farrar

Joshua S. Farrar
Town Manager

Chesterfield County, Virginia

Joseph P. Casey, Ph.D., County Administrator
9901 Lori Road – P.O. Box 40 – Chesterfield, VA 23832-0040
Phone: (804) 748-1211 – Fax: (804) 717-6297 – Internet: chesterfield.gov

December 3, 2019

Mr. Jerry Cifor
County Waste, Inc.
12230 Deergrove Road
Midlothian, VA 23112

Subject: Green Ridge Landfill Capacity Reserve – Chesterfield County

Dear Mr. Cifor:

Chesterfield County currently generates 35,000 tons of Municipal Solid Waste annually from our convenience centers in Chesterfield and related solid waste from County and School facilities. In addition, our citizens generate an additional 254,000 tons annually utilizing a variety of haulers, of which the Shoosmith Landfill is a large recipient of such solid waste. Both of these tonnage figures are expected to increase annually. As we approach the end of our MSW disposal contract in 2023, there will likely be fewer regional options for disposal due to facilities reaching capacity or closing; such as the Shoosmith Landfill. We understand that County Waste will also be fully utilizing this landfill until it reaches capacity in approximately five years.

The proposed Green Ridge Recycling and Disposal facility represents an opportunity to increase waste disposal capacity significantly in Central Virginia, and increase competition, thus providing a potential cost benefit to our county, its residents, and businesses in connection with their waste disposal needs.

We appreciate being considered as a potential future user of the Green Ridge Recycling and Disposal Facility and would like to preserve the option of disposal at that facility for future procurement. We also respect state and local approval processes for any such facility. Please contact county staff with any questions or clarifications regarding this request.

Sincerely,

Joseph P. Casey, Ph.D.
County Administrator

Rappahannock Regional Solid Waste Management Board

489 Eskimo Hill Road • Stafford, Virginia 22554 • 540-658-5279 • FAX 540-658-4523

December 6, 2019

County Waste Green Ridge Recycling and Disposal Facility
Attn: Jerry Cifor
12230 Deergrove Rd.
Midlothian VA 23112

The Rappahannock Regional Landfill (R-Board) is a regional body that serves the waste management needs for the City of Fredericksburg and Stafford County. Our main focus is in landfilling and moving recyclables to processors.

County Waste is a customer to our landfill and provides waste hauling and recycling services for the commercial businesses and residents of Fredericksburg and Stafford County. They have always been a good environmental steward to our service area and responsive to all service requests. They currently bring in over 4,500 tons per month to our landfill and have always been in good standing with payments.

We have worked with them on community outreach projects such as our Earth Day events which will draw thousands of people each year. They assist with free waste and recycling collection. They also do activities for community events.

They run a transfer station for waste and recycling nearby in Spotsylvania. This has been a valuable resource for the area.

In our experience working with them we feel they are a reliable entity in our waste management community and hope they will continue to provide service to our region.

Respectfully,

Joe Buchanan
R-Board Director

BOTETOURT
COUNTY OF VIRGINIA

Office of the Administrator

57 South Center Drive
Daleville, Virginia 24083
December 10, 2019

Virginia DEQ
Richmond, Virginia

To whom it concerns,

I write this letter in support of the Green Ridge project in Cumberland County. The project is the result of years of planning with a vision for the future from the leadership of County Waste and should be allowed to move forward as planned for the benefit of all involved.

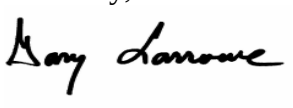
County Waste entered into a management agreement with Botetourt County to operate and close the County Landfill. County Waste has been a fabulous partner in this process and I know their leadership can own/operate the Green Ridge project. They have the knowledge, history and resources to fully develop the state of the art facility and bring additional prosperity to Cumberland County. The multiplied benefits of County Waste paying taxes, operating a landfill in the locality and the locality being paid on a per ton basis, is a great deal for the locality. We also feel certain that the Cumberland operation will assist Botetourt (and other localities) meet future waste disposal needs and will support the Transfer Station in Botetourt.

Landfills are complicated and it takes a firm like County Waste to tackle the project with a professional plan of action to make it work.

If the work in Botetourt County is any indication of the work that will take place in Cumberland, the DEQ, Cumberland County and the citizens of the community will be pleased. I would personally be happy to provide further details of the positive relationship Botetourt County has with County Waste if needed.

(540) 928-2006
GLarrowe@BotetourtVA.gov
BotetourtVA.gov

Sincerely,



Gary Larrowe
County Administrator
Botetourt County, Virginia

(540) 928-2006
GLarrowe@BotetourtVA.gov
BotetourtVA.gov

APPOMATTOX COUNTY
BOARD OF SUPERVISORS
P.O. Box 863, Appomattox, VA 24522 Phone: (434) 352-2637
www.AppomattoxCountyVA.gov

December 1, 2019

Mr. Jerry Cifor
Green Ridge Recycling and Disposal Facility, LLC
12230 Deerhill Road
Midlothian, VA 23112

RE: Appomattox County Letter of Support for the Green Ridge Recycling and Disposal Facility

Dear Mr. Cifor:

On behalf of Appomattox County, I am writing in support of the Green Ridge Recycling and Disposal Facility that your company is seeking to have permitted by the Virginia Department of Environmental Quality ("DEQ"). Appomattox County currently participates in the Region 2000 Service Authority, and the landfill that Region 2000 operates will reach capacity in approximately eight (8) years. Appomattox County currently generates approximately 5,300 tons of municipal solid waste annually, and that number is expected to increase. The Green Ridge facility represents an important option for Appomattox that needs to be available as Appomattox strives to meet its future waste disposal needs.

Moreover, County Waste of Southwest Virginia, LLC ("County Waste") recently obtained a conditional use permit to operate a transfer station in Appomattox County as well as a convenience center for County residents. Appomattox County has a Host Agreement with County Waste for that transfer station under which the County receives a fee for each ton of waste brought to the Appomattox transfer station. The transfer station represents a substantial, much needed revenue source for the County, and the transfer station will to a large extent rely on the Green Ridge facility.

In addition, most of the private landfill capacity in Virginia is controlled by two companies. The proposed Green Ridge Recycling and Disposal facility represents an opportunity to substantially lower waste disposal costs by increasing much needed competition.

In short, Appomattox County strongly supports your company's request for a DEQ permit to construct and operate a municipal solid waste landfill in Cumberland County, and you may submit this letter of support to DEQ in seeking any necessary permits for the facility.

Best Regards,

Susan M. Adams

Susan M. Adams, County Administrator

ATTACHMENT PTA-XX - AIRPORT PROXIMITY AND AGENCY COORDINATION

Distance

A Regional Map (**Figure PTA-3**, **Attachment PTA-IX**) with 1-mile, 3-mile, and 5-mile radii lines showing the locations of airports has been developed. As shown on the Regional Map, there are no airports located inside the 5-mile radius of the Green Ridge facility. The nearest airport, Plainview Airport (VA94), is located approximately 13 miles from the Facility.

Public Use

In order to determine the nearest public-use airport, DAA contacted the Virginia Department of Aviation. In a response letter (dated May 6, 2019), Mr. S. Scott Denny, Senior Aviation Planner confirmed that the nearest airport (Plainview) is not a public-use airport. He stated, "*The closest public-use airport is Farmville Regional Airport which is located approximately 20+/- miles southwest of the proposed landfill site*". The letter of inquiry and Virginia Department of Aviation response letter are included in **Attachment PTA-XX**.

Increased Bird Hazard

Not applicable.

Estimation of Likelihood of Increased Risk

Not applicable.

As shown on the Regional Map, the Facility boundary is not located within 10,000 feet of any airport runway end used by turbojet aircraft, or within 5,000 feet of any airport runway end used by only piston-type aircraft. Therefore, in accordance with §9 VAC 20-81-120.I.2, it is not required to demonstrate that the units are designed and operated so that the Facility does not pose a bird hazard.

Barbara Hadley

From: Barbara Hadley
Sent: Thursday, May 2, 2019 12:31 PM
To: director@doav.virginia.gov
Subject: Landfill Siting - Cumberland County, VA

Good afternoon,

We are currently preparing a Part A Permit Application for a proposed new landfill (Green Ridge Recycling & Disposal) in Cumberland County, Virginia. As part of that process, we must establish that there are no public-use airports within a 3-mile radius of our site.

The nearest airport (to our knowledge) is the Plainview Airport (VA94), located on Old Buckingham Road in Cumberland (see map below). While it is located beyond the 3-mile perimeter, we still need to include in our application verification that it is not a public-use airport. Therefore, I am requesting a letter of determination from your offices, verifying that this is not a public-use airport.

If you have any questions or need further details, please do not hesitate to contact me.

Thank you,

Barbara H. Hadley

Staff Project Administrator

Draper Aden Associates
Engineering • Surveying • Environmental Services
Lasting Positive Impact™

Phone: 804.264.2228 • Direct Line: 804.237.1807

We have relocated our Richmond office:
1030 Wilmer Avenue, Suite 100
Richmond, VA 23227

Web • Blog • Facebook • Twitter • LinkedIn

COMMONWEALTH of VIRGINIA

Mark K. Flynn
Director

Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250-2422

V/TDD • (804) 236-3624
FAX • (804) 236-3635

May 6, 2019

Ms. Barbara Hadley, Project Administrator
Draper Aden Associates
1030 Wilmer Avenue, Suite 100
Richmond, Virginia 23227

RE: Proposed Cumberland County Landfill, Public-Use Airport Proximity

Dear Ms. Hadley:

The Virginia Department of Aviation received your e-mail dated May 6, 2019. Your e-mail referenced a proposed landfill in Cumberland County and asked if the nearest airport, Plainview Airport (VA94), was a public-use airport. The Plainview Airport is located approximately 13+/- miles from the site you provided in your e-mail not a public a public–use airport.

The closest public-use airport is Farmville Regional Airport which is located approximately 20+/- miles southwest of the proposed landfill site.

Please do not hesitate to contact me at (804) 236-3638 if you have any questions regarding this matter.

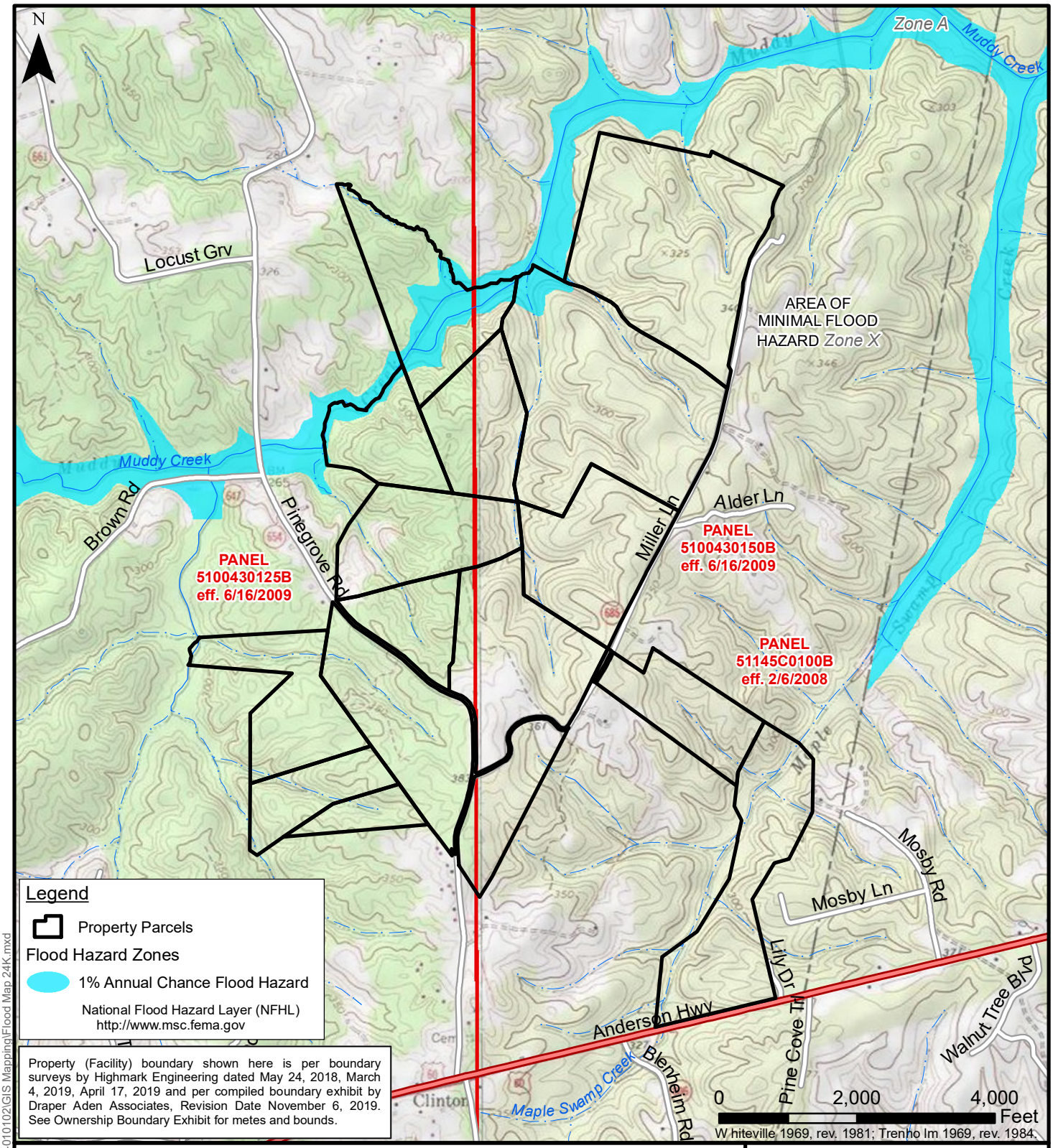
Sincerely,

S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation

ATTACHMENT PTA-XXI - FEMA FLOOD INSURANCE RATE MAP

In accordance with §9 VAC 20-81-120.A, owners or operators of all sanitary landfills located in the 100-year floodplains shall demonstrate that the site will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. And pursuant to §10.-1408.4.B.1, no new municipal solid waste landfill shall be constructed in a 100-year floodplain.

To evaluate the applicability of the requirements of §9 VAC 20-80-250.A.2, the waste management boundary of the proposed site was compared with the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Cumberland County, Virginia. Based on information from the FEMA FIRM, no portion of the waste management boundary is located within the 100-year floodplain. See Near Vicinity Map (**PTA-IX Figure 2**) relative to this.



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FEMA Flood Insurance Rate Map

Notice of Intent - Part A

Green Ridge Recyling
and Disposal Facility
Cumberland County, Virginia

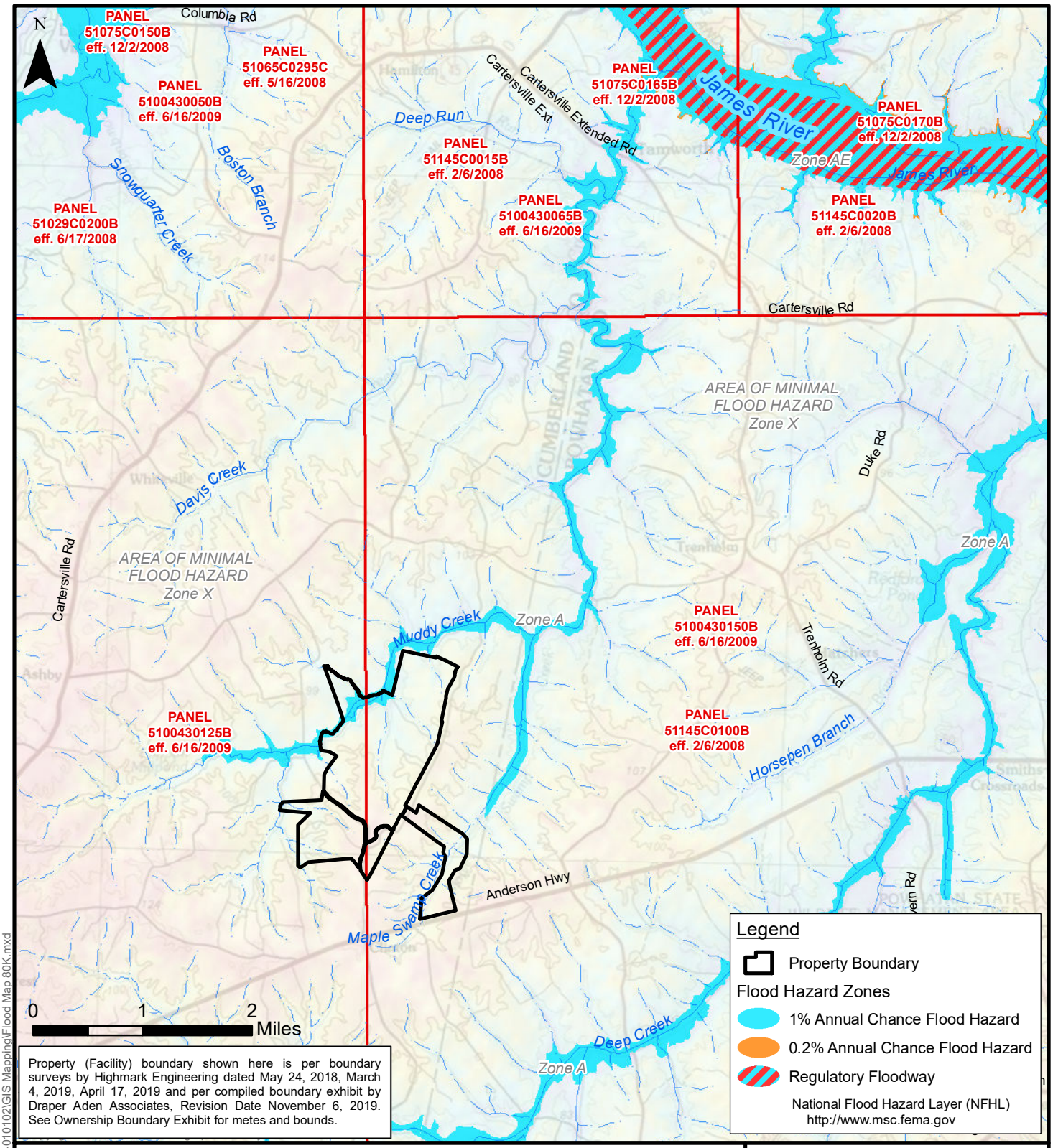
SCALE: 1" = 2000'

PROJECT: 18020117-030102

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
1030 Wilmer Avenue, Suite 100
Richmond, VA 23227
804-264-2228 Fax: 804-264-8773
Blacksburg, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia

DESIGNED: LPK
DRAWN: SMF
CHECKED: KEB
DATE: 12-09-19

FIGURE
XXII-1



Property (Facility) boundary shown here is per boundary surveys by Highmark Engineering dated May 24, 2018, March 4, 2019, April 17, 2019 and per compiled boundary exhibit by Draper Aden Associates, Revision Date November 6, 2019. See Ownership Boundary Exhibit for metes and bounds.

FEMA Flood Insurance Rate Map

Notice of Intent - Part A

Green Ridge Recyling and Disposal Facility
Cumberland County, Virginia

SCALE: 1:80,000

PROJECT: 18020117-030102

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
1030 Wilmer Avenue, Suite 100
Richmond, VA 23227
804-264-2228 Fax: 804-264-8773
Blacksburg, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia

DESIGNED: LPK
DRAWN: SMF
CHECKED: KEB
DATE: 12-09-19

FIGURE XXII-2

Path: P:\2018\1802\0100\18020117\18020117-010102\GIS Mapping\Flood Map 80K.mxd

ATTACHMENT PTA-XXII - WETLANDS DEMONSTRATION AND AGENCY COORDINATION

In accordance with Code of Virginia 0.1-1408.4.B.2, 10.1-1408.5.E, and *VSWMR* 9 VAC 20-81-120.E.3, Koontz Bryant Johnson and Williams delineated all wetlands across the Facility and submitted their results to the Army Corps of Engineers on May 11, 2018, as part of a request for a Preliminary Jurisdictional Determination. This request and the delineation study is included in **Appendix LIS-2E**, along with the wetland delineation maps and the final Preliminary Jurisdictional Determination from the Army Corps on August 22, 2019.

Following delineation of wetlands across the Facility, project elements (disposal units, roads, etc.) were modified or eliminated to remove all direct impacts to wetlands. . Documents related to the study are included in this Attachment.

KOONTZ BRYANT
JOHNSON WILLIAMS

May 11, 2018

Mr. Steven Vanderploeg
Army Corps of Engineers
Richmond Field Office
9100 Arboretum Parkway, Suite 235
Richmond, VA 23236

Subject: Confirmation of Wetland Boundaries
Pinegrove Road, Cumberland County, VA
Latitude: 37.543032
Longitude: -78.125958

Applicant: CWV, LLC, c/o James H. Martin
P.O. Box 636
Cobbs Creek, VA 23035

Table 1.1: Parcels Within Project Boundary	
38-A-7	**44-A-19A**
45-A-1	45-A-7
37-A-69	**44-A-22**
45-A-20	44-A-21
44-A-19	**44-A-14**
44-A-36	44-A-13
45-A-11	**45-2-2-B**
45-1-40	

Dear Mr. Vanderploeg,

Koontz Bryant Johnson Williams has been retained by Mr. James H. Martin of CWV, LLC. to conduct a detailed wetland delineation on the parcels referenced in Table 1.1. The project site is approximately 1,300 acres and is located in the Middle James River drainage basin in Cumberland County off of Pinegrove Road and Anderson Highway. Fieldwork for this project was conducted throughout March and April of 2018.

The project site contains two named creeks, Muddy Creek and Maple Swamp Creek, along with their contiguous wetland systems. The system shows habitats ranging from Upper Perennial to Palustrine Forested/Emergent wetland along with areas of ephemeral and intermittent flow. Resources such as the U.S. Fish and Wildlife Service Wetlands Mapper database and the U.S. Department of Agriculture's Web Soil Survey were consulted throughout the project.

On behalf of our client, CWV, LLC., we request a Preliminary Jurisdictional Determination be performed by the Army Corps of Engineers. We would appreciate the opportunity to meet with you on site and present our findings and our fieldwork. Please coordinate with us to set up a meeting date and time or to discuss any questions there may be regarding our delineation.

Sincerely,

Hannah L. Miller
Environmental Scientist, KBJW

KOONTZ BRYANT
JOHNSON WILLIAMS

WETLAND DELINEATION – Pinegrove Road
Cumberland County, Virginia

Project Description

Our project boundaries encompass approximately 1,300 acres of forested and partially cleared land located within Cumberland County, Virginia off of Pinegrove Road and Anderson Highway. This extensive wetland system contains two named creek systems, Muddy Creek on the northwestern portion of the property and Maple Swamp Creek on the southeastern portion, both of which fall beneath the upper perennial (R3) classification. With a drainage basin of 8.31 square miles, the system is topographically driven with the majority of inflow originating from storm water drainage introduced through the surrounding unnamed tributaries that expand inwards throughout the property. These tributaries eventually become more defined and intermittent upstream from any major named creeks. Downstream from the project site, Maple Swamp Creek flows into Muddy Creek which then continues north until it reaches the James River. Vegetation in these areas were dominated by mature and sapling tree growth made up of American Hornbeam (*Carpinus caroliniana*), American Sycamore (*Platanus occidentalis*), American Sweetgum (*Liquidambar styraciflua*) and River Birch (*Betula nigra*). Other vegetation includes Greenbriar (*Smilax rotundifolia*) and River Bank Vine (*Vitis riparia*). Soils throughout the system presented low chromas and other redoximorphic features in field samples. The presence of aquatic fauna was also noted throughout the property ranging from habitat influenced by beaver activity to evidence of amphibian and fish populations.

In addition to the upper perennial sections, there are contiguous broad floodplains that can be found alongside the named creeks. These areas are made up of inundated, low lying areas that are heavily driven by toe of slope features and cyclical flooding of the major creeks. Mostly classified as palustrine forested wetlands (PFO) these sections were usually identified by a change in vegetation that resulted in habitats comprised mostly of plants with an indicator status of OBL or FACW such as Green Arrow Arum (*Peltandra virginica*), Rush (*Juncus effusus*), mature River Birch (*Betula nigra*) and mature American Hornbeam (*Carpinus caroliniana*). Soils in these areas showed low chromas and redoximorphic features along with heavy saturation and standing water.

Please see the attached wetlands map to see a detailed layout of the wetlands system along with a classification for each area mapped. Data point forms for both wetlands and uplands have been generated for Data Points 1-27 which cover the entirety of the site.

KOONTZ BRYANT
JOHNSON WILLIAMS

Attachments

Preliminary Jurisdictional Determination Application
Wetland Delineation Map
Figure 1A: Vicinity Map
Figure 1B: USGS Topographic Map
Figure 2A: NWI
Figure 2B: NWI
Figure 2C: NWI
Figure 3A: Web Soil Survey
Figure 3B: Web Soil Survey
Figure 3C: Web Soil Survey
Associated Map Units for WSS
Wetland/Upland Data Points 1-27

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Office
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/technical%20services/Regulatory%20branch/homepage.asp

Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: 5/14/2018
2. City or County where property located: Cumberland County
3. Address of property and directions (attach a map of the property location and a copy of the property plat): Pinegrove Road and Anderson Highway (Rt. 60), Cumberland County, VA
4. Size of property in acres: 1300 acres
5. Tax Parcel Number / GPIN (if available): #38-A-7, #45-A-1, #37-A-69, #45-A-20, #44-A-19, #44-A-36, #45-A-11, #44-A-19A, #45-A-7, #44-A-22, #44-A-21, #44-A-14, #44-A-13, #45-2-2-B and #45-1-40
6. Name of Nearest Waterway: Muddy Creek and Maple Swamp Creek

7. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:

   To determine the limits of wetlands on the above-mentioned parcels for potential future development.

8. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☐ YES ☐ NO ☒ UNKNOWN

   If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

Property Owner Contact Information:

Property Owner Name: CWV, LLC; c/o James H. Martin
Mailing Address: P.O. Box 636
City: State: Zip: Cobbs Creek, VA 23035
Daytime Telephone: 804-356-4628
E-mail Address: jameshmartinjr49@gmail.com

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

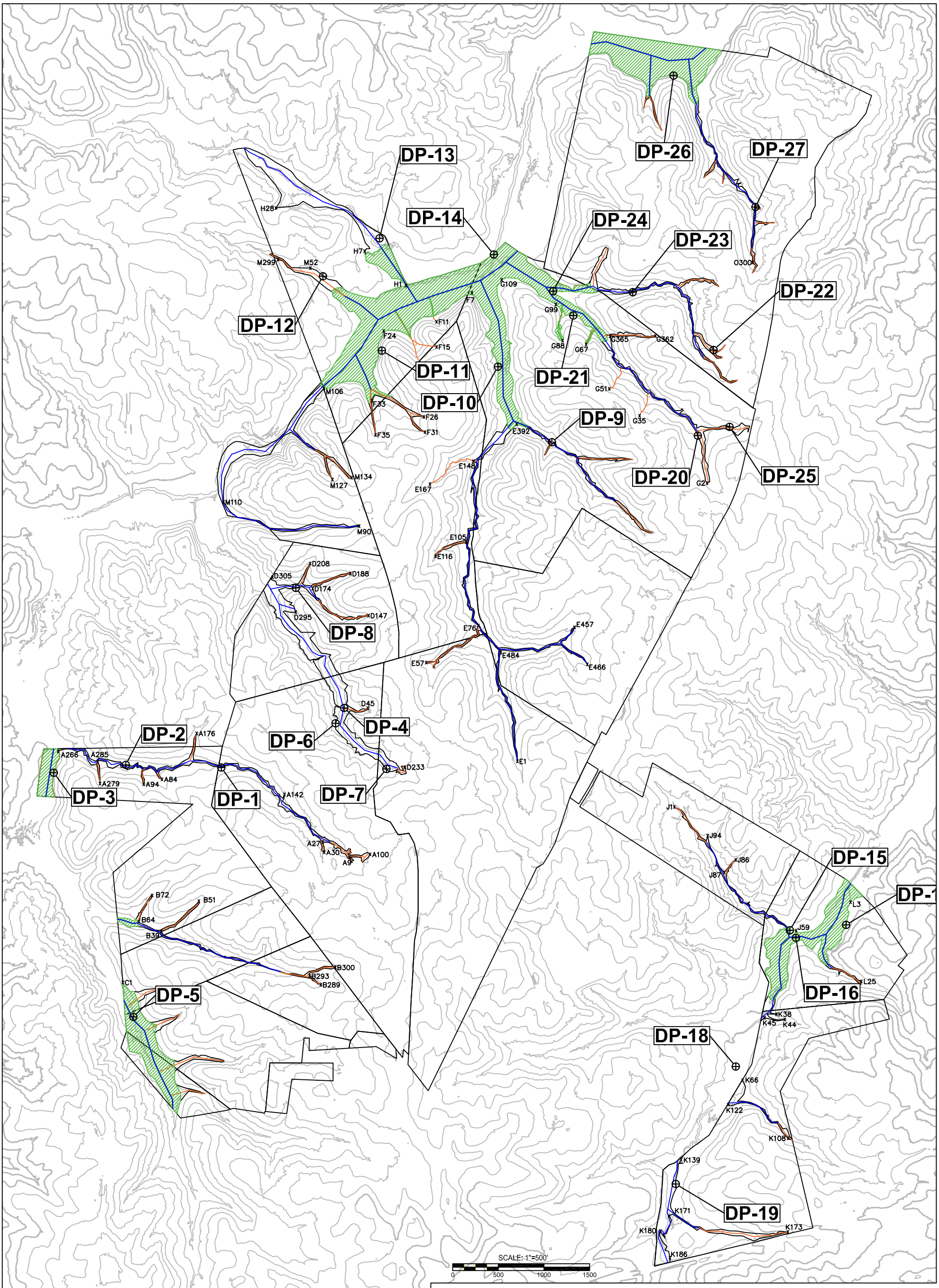
Requestor Name: Koontz Bryant Johnson Williams, Hannah L. Miller, Shannon D. Hill
Mailing Address: 11901 Old Stage Road
City: State: Zip: Chester, VA 23836
Daytime Telephone: 804-541-1436
E-mail Address: hmiller@kbjwgroup.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

Property Owner's Signature

5/14/2018
Date



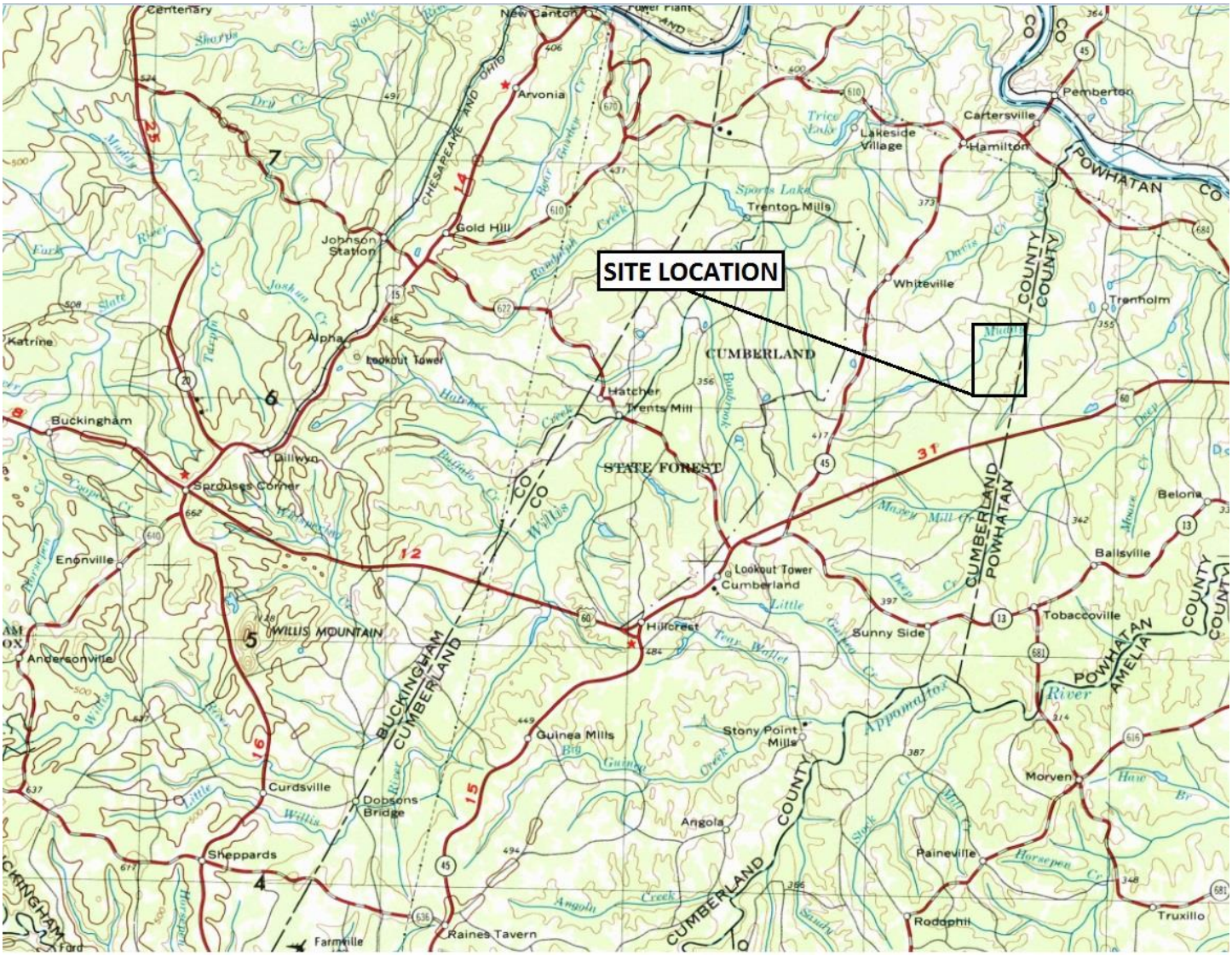
Legend		
Color	Classification	Area Quantities
	PFO Wetlands	62.24 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	23,579.41 LF

WETLAND DELINEATION MAP
CUMBERLAND COUNTY, VIRGINIA
HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	May 10, 2018		1" = 500'

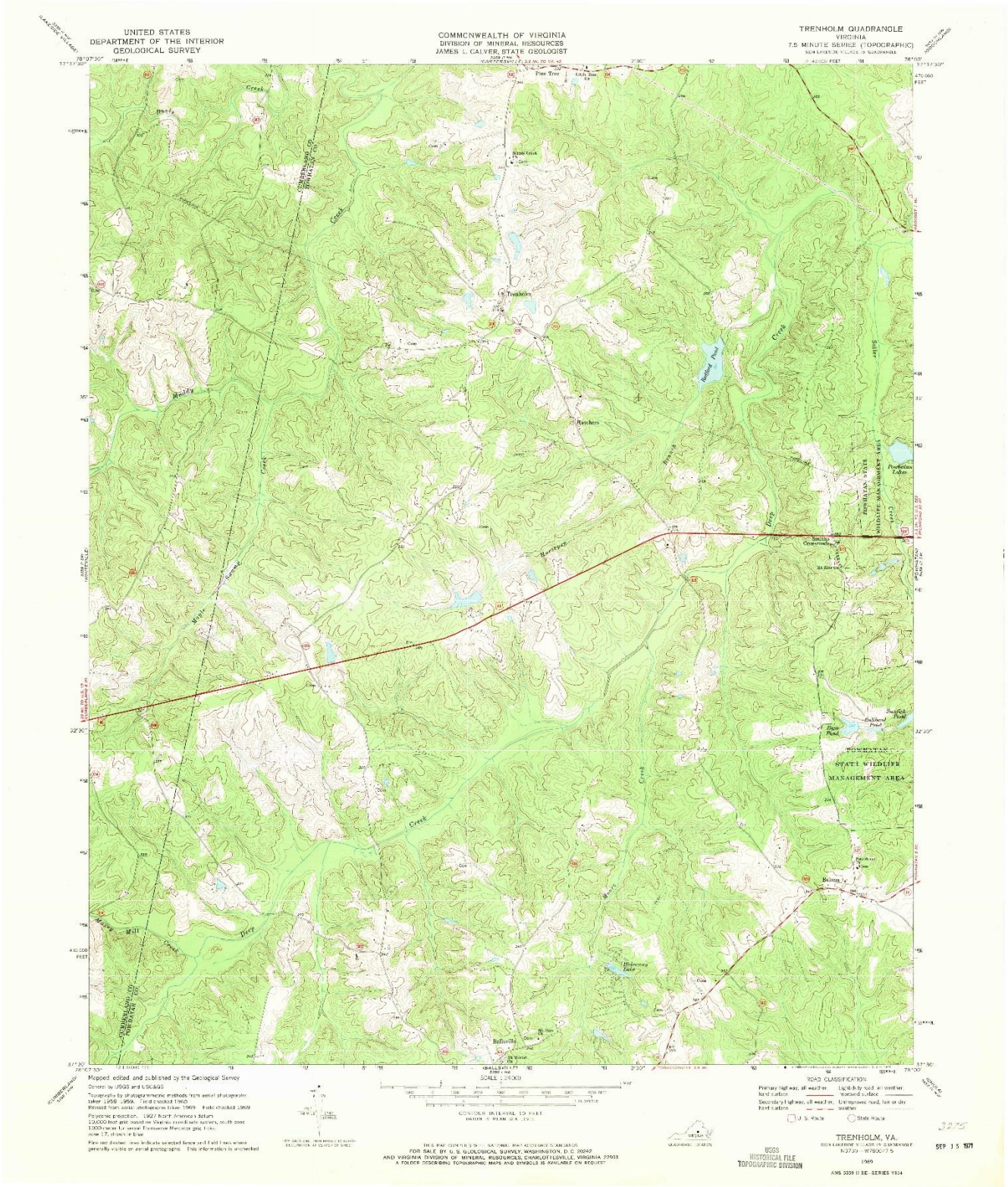
KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd. Suite 202
Henrico, Va 23229
(804) 740-9200
FAX (804) 740-7338
www.KBJWgroup.com

VICINITY MAP FOR CUMBERLAND COUNTY, VIRGINIA: SITE LOCATION



KOONTZ BRYANT JOHNSON WILLIAMS

Figure 1A
Vicinity Map
Cumberland County, VA
May 2018



KOONTZ BRYANT JOHNSON WILLIAMS

Figure 1B
U.S.G.S. Topographic Map
Trenholm Quadrant, 7.5 Minute Series
Cumberland County, VA
May 2018

U.S. Fish and Wildlife Service
National Wetlands Inventory

North of Pinegrove

March 21, 2018

Wetlands

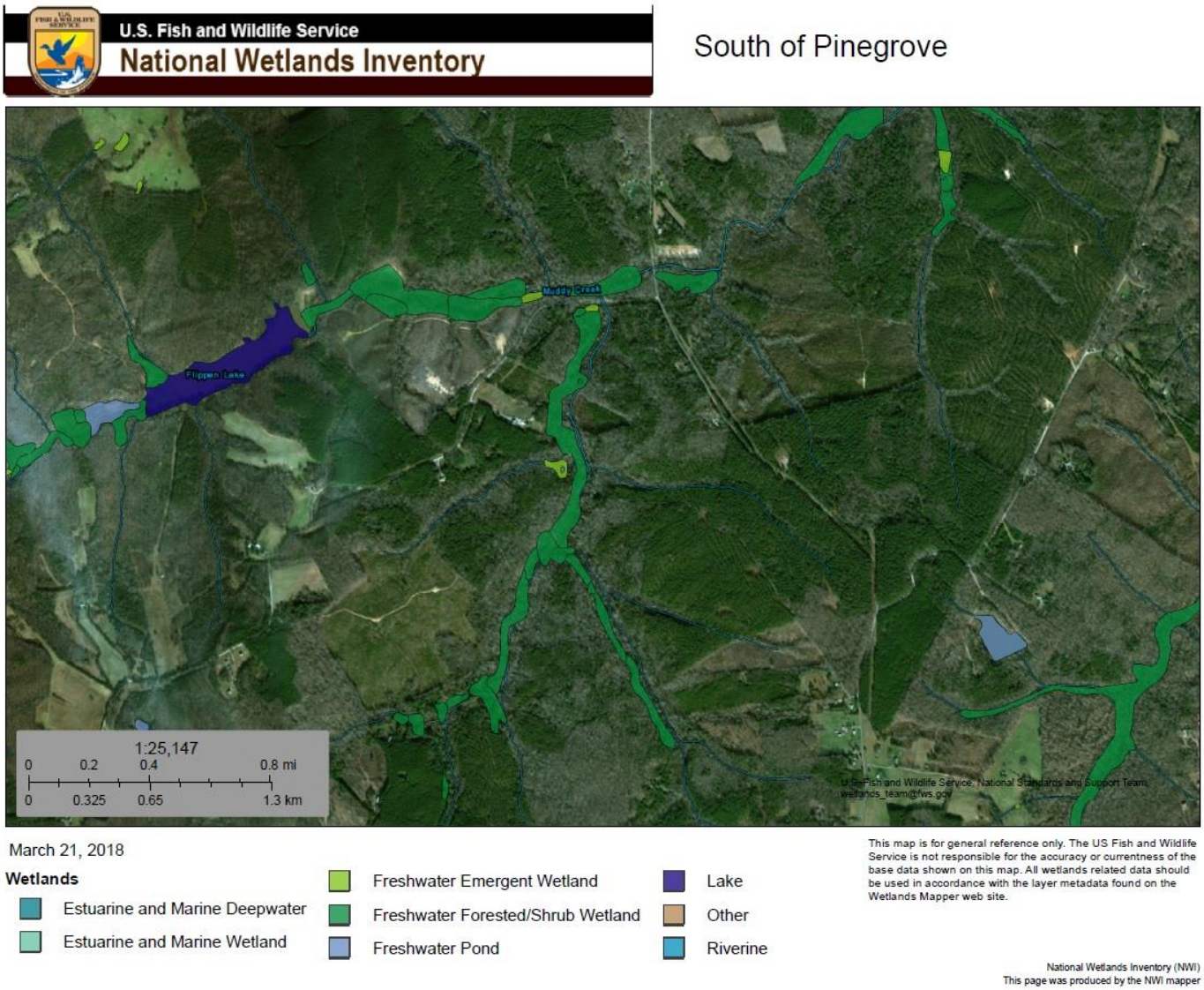
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

KOONTZ BRYANT JOHNSON WILLIAMS

Figure 2A
National Wetlands Inventory
North of Pinegrove Road
Cumberland County, VA
May 2018

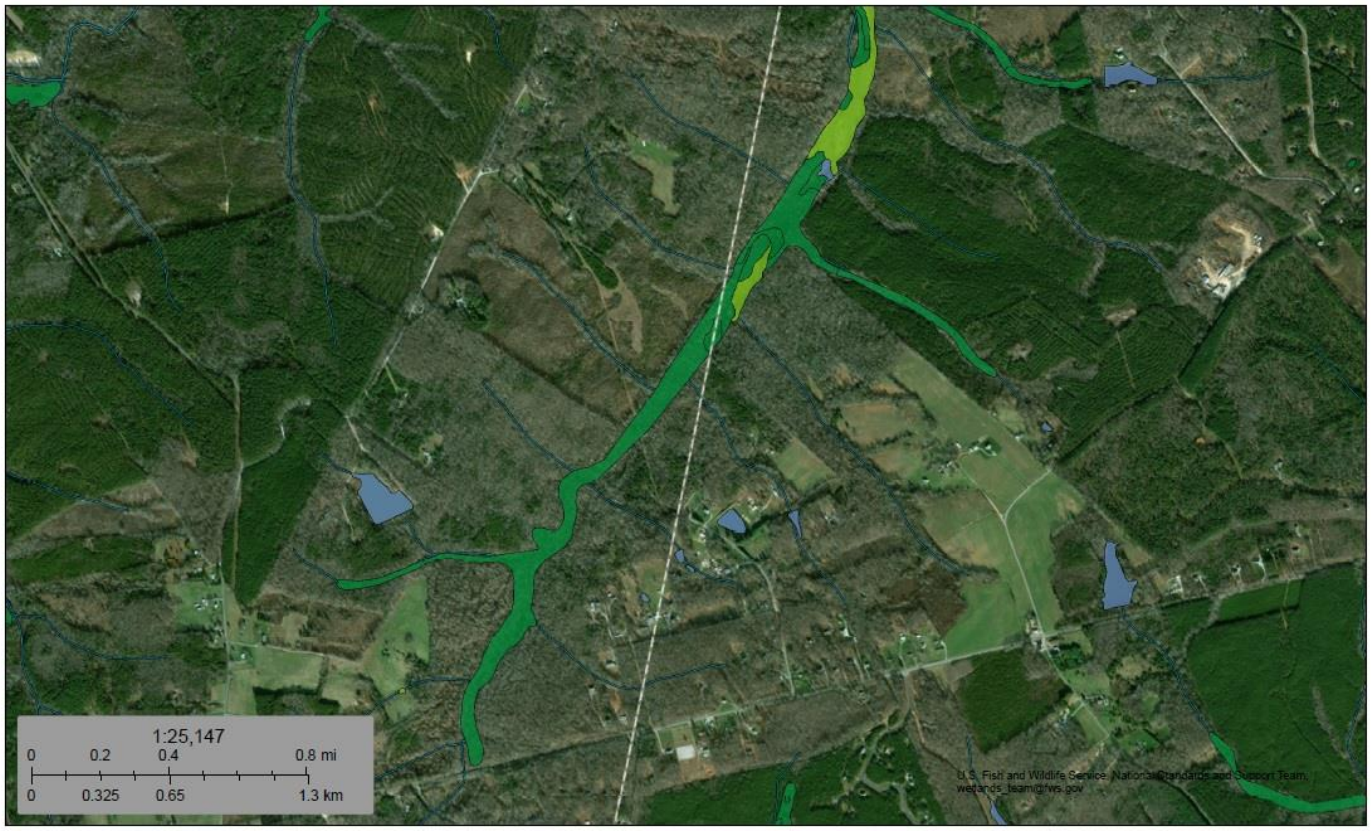


KOONTZ BRYANT JOHNSON WILLIAMS

Figure 2B
National Wetlands Inventory
South of Pinegrove Road
Cumberland County, VA
May 2018

U.S. Fish and Wildlife Service
National Wetlands Inventory

Entryway



May 9, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

KOONTZ BRYANT JOHNSON WILLIAMS

Figure 2C
National Wetlands Inventory
Entryway off of Pinegrove Road
Cumberland County, VA
May 2018

KOONTZ BRYANT JOHNSON WILLIAMS

Figure 3A

North of Pinegrove Road
Cumberland County, VA
May 2018

SOIL SURVEY OF CUMBERLAND COUNTY, VIRGINIA

KOONTZ BRYANT JOHNSON WILLIAMS

Figure 3B
South of Pinegrove Road
Cumberland County, VA
May 2018

KOONTZ BRYANT JOHNSON WILLIAMS

Figure 3C
Entryway on Route 60
Cumberland County, VA
May 2018

Figure 3A – North of Pinegrove Road	
Map Unit Symbol	**Map Unit Name**
1B	Appling fine sandy loam
2C	Appling-Helena complex
6B	Cecil sandy loam
7C	Cecil sandy clay loam
8A	Chewacla and Monacan soils
16B – 16C – 16D	Enon-Helena complex
21B – 21C	Helena sandy loam
23B	Mattaponi-Appling complex
30D	Pacolet-Wateree complex
32B – 32C – 32D	Poindexter-Wedowee complex
42D	Wateree sandy loam

Figure 3B – South of Pinegrove Road	
Map Unit Symbol	**Map Unit Name**
1B	Appling fine sandy loam
2C	Appling-Helena complex
8A	Chewacla and Monacan soils
17C	Enon-Helena complex
21B – 21C	Helena sandy loam
23B	Mattaponi-Appling complex
32B – 32C – 32D	Poindexter-Wedowee complex
42C – 42D	Wateree sandy loam

Figure 3C - Entryway	
Map Unit Symbol	**Map Unit Name**
1B	Appling fine sandy loam
2C	Appling-Helena complex
6B	Cecil sandy loam
7C	Cecil sandy clay loam
8A	Chewacla and Monacan soils
16B	Enon-Helena complex
21B – 21C	Helena sandy loam
32B – 32C – 32D	Poindexter-Wedowee complex
41B	Trenholm sandy loam
42C	Wateree sandy loam

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 3/29/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-1
Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map #44-A-22
Landform (hillslope, terrace, etc.): Flooplain Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.559960664 Long: -78.1324335127 Datum: _____
Soil Map Unit Name: Poindexter Wedowee Complex NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag A-70.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 6"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-1

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20%	YES	FAC
2. Betula nigra	15%	YES	FACW
3.			
4.			
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		

Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	20%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 20'x20')			
1. Vaccinium corymbosum	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	20%	YES	FAC
2. Vitis riparia	10%	YES	FACW
3.			
4.			
5.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 7/2	90	7.5YR 5/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 3/29/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-1, UPL

Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map #44-A-22

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%

Subregion (LRR or MLRA): n/a Lat: 37.559960664 Long: -78.132435127 Datum: _____

Soil Map Unit Name: Poindexter Wedowee Complex NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag A-70.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-1, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	35%	YES	FACU
2. Pinus taeda	35%	YES	FAC
3.			
4.			
5.			
6.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 20'x20')			
1. Juniperus virginiana	30%	YES	FACU
2.			
3.			
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	100 (A)		365 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-1, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-12	10YR 5/4	100					Sandy Loam	
12-18	10YR 6/4	100					Light Sandy CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 3/29/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-2

Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map #44-A-14

Landform (hillslope, terrace, etc.): Flooplain Local relief (concave, convex, none): _____ Slope (%): 1-3%

Subregion (LRR or MLRA): n/a Lat: 37.560008776 Long: -78.136042609 Datum: _____

Soil Map Unit Name: Poindexter Wedowee Complex NWI classification: R3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag A-195.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-2

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ilex opaca	30%	YES	FAC
2. Carpinus caroliniana	30%	YES	FAC
3.			
4.			
5.			
6.			
	60% = Total Cover		

50% of total cover: 30% 20% of total cover: 12%

Sapling Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	30%	YES	FACW
2. Smilax rotundifolia	10%	YES	FAC
3.			
4.			
5.			
	40% = Total Cover		

50% of total cover: 20% 20% of total cover: 8%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 6/2	85	7.5YR 5/8	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 3/29/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-2, UPL
Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map #44-A-22
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.560008776 Long: -78.136042609 Datum: _____
Soil Map Unit Name: Poindexter Wedowee Complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag A-195.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-2, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	30%	YES	FACU
2. Pinus taeda	30%	YES	FAC
3.			
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 20'x20')			
1. Juniperus virginiana	15%	YES	FACU
2. Fagus grandifolia	25%	YES	FACU
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-2, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-18	10YR 5/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 3/29/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-3
Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map # 44-A-14
Landform (hillslope, terrace, etc.): Flooplain Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.559782661 Long: -78.138765453 Datum: _____
Soil Map Unit Name: Poindexter Wedowee Complex NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag A-260.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 5"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

B13: Beaver pond was present in the area.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-3

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30%	YES	FAC
2. Fagus grandifolia	20%	YES	FACU
3.			
4.			
5.			
6.			
	50%	= Total Cover	

50% of total cover: 25% 20% of total cover: 10%

Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	25%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	25%	= Total Cover	

50% of total cover: 12.5% 20% of total cover: 5%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	25%	YES	FAC
2.			
3.			
4.			
5.			
	25%	= Total Cover	

50% of total cover: 12.5% 20% of total cover: 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Sandy Loam	
4-18	10YR 7/1	90	7.5YR 6/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 3/29/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-3, UPL
Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map #44-A-14
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.559782261 Long: -78.138765453 Datum: _____
Soil Map Unit Name: Poindexter Wedowee Complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag A-260.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-3, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	25%	YES	FACU
2. Pinus taeda	25%	YES	FAC
3.			
4.			
5.			
6.			
	50% = Total Cover		

50% of total cover: 25% 20% of total cover: 10%

Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	30%	YES	FACU
2. Juniperus virginiana	20%	YES	FACU
3.			
4.			
5.			
6.			
	50% = Total Cover		

50% of total cover: 25% 20% of total cover: 10%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-3, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-12	10YR 5/6	100					Sandy Loam	
12-18	10YR 6/6	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-4

Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #44-A-13

Landform (hillslope, terrace, etc.): Flooplain Local relief (concave, convex, none): _____ Slope (%): 1-3%

Subregion (LRR or MLRA): n/a Lat: 37.554453962 Long: -78.133166947 Datum: _____

Soil Map Unit Name: Waterlee sandy loam NWI classification: R3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag B-265.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-4

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	25%	YES	FACW
2. Liquidambar styraciflua	20%	YES	FAC
3. Acer rubrum	10%	YES	FAC
4.			
5.			
6.			
	55% = Total Cover		
50% of total cover: 27.5%	20% of total cover: 11%		

Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	25%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	5%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		

Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	15%	YES	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Sandy Loam	
4-18	10YR 6/2	90	7.5YR 5/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-4, UPL
Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #44-A-13
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.554453962 Long: -78.133166947 Datum: _____
Soil Map Unit Name: Wateree sandy loam NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag B-265.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-4, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	25%	YES	FACU
2. Pinus taeda	20%	YES	FAC
3.			
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Sapling Stratum (Plot size: 20'x20')			
1. Juniperus virginiana	20%	YES	FACU
2. Ilex opaca	10%	YES	FAC
3.			
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Diphasiastrum digitatum	25%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-4, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-10	10YR 5/6	100					Sandy Loam	
10-18	10YR 6/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-5
Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map # 44-A-13
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.550000 Long: -78.140000 Datum: _____
Soil Map Unit Name: Poindexter Wedowee complex NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag C-7.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

B13: Small fish were present within the stream.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-5

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	25%	YES	FACW
2. Liquidambar styraciflua	30%	YES	FAC
3. Acer rubrum	10%	YES	FAC
4.			
5.			
6.			
	65% = Total Cover		

50% of total cover: 32.5% 20% of total cover: 13%

Sapling Stratum (Plot size: 20'x20')			
1. Lindera benzoin	10%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		

50% of total cover: 5% 20% of total cover: 2%

Shrub Stratum (Plot size: 20'x20')			
1. Microstegium vimineum	15%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		

50% of total cover: 7.5% 20% of total cover: 3%

Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		

50% of total cover: 5% 20% of total cover: 2%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Sandy Loam	
3-18	10YR 6/2	85	7.5YR 5/8	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-5, UPL

Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #44-A-13

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 3-5%

Subregion (LRR or MLRA): n/a Lat: 37.5500 Long: -78.1400 Datum: _____

Soil Map Unit Name: Poindexter Wedowee complex NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag C-7.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-5, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	30%	YES	FACU
2. Pinus taeda	25%	YES	FAC
3. Fagus grandifolia	15%	YES	FACU
4.			
5.			
6.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 20'x20')			
1. Prunus serotina	10%	YES	FACU
2. Fagus grandifolia	10%	YES	FACU
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	10%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-5, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-10	10YR 5/6	100					Sandy Loam	
10-18	10YR 6/6	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-6
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.561240569 Long: -78.128110388 Datum: _____
Soil Map Unit Name: Pacolet-Wateree complex/Poindexter-Wedowee complex NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag D-28.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-6

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20%	YES	FAC
2. Acer rubrum	20%	YES	FAC
3. Prunus serotina	15%	YES	FACU
4.			
5.			
6.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	20%	YES	FAC
2. Salix nigra	5%	YES	OBL
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Shrub Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	15%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	5%	YES	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 6/1	90	7.5YR 5/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-6, UPL
Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #44-A-22
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.561240569 Long: -78.128110388 Datum: _____
Soil Map Unit Name: Poindexter Wedowee complex/ Pacolet wateree complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag D-28.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-6, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	25%	YES	FACU
2. Liquidambar styraciflua	20%	YES	FAC
3. Diospyros virginiana	10%	NO	FAC
4.			
5.			
6.			
	55% = Total Cover		
50% of total cover: 27.5%	20% of total cover: 11%		
Sapling Stratum (Plot size: 20'x20')			
1. Pinus taeda	20%	YES	FAC
2. Fagus grandifolia	10%	YES	FACU
3.			
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	15%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-6, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-18	10YR 6/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-7

Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 44-A-19A

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%

Subregion (LRR or MLRA): n/a Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Wateree sandy loam NWI classification: R3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag D-84.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-7

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20%	YES	FAC
2. Platanus occidentalis	20%	YES	FACW
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	20%	YES	FAC
2. Liquidambar styraciflua	20%	YES	FAC
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	10%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					Sandy Loam	
5-18	10YR 6/2	85	7.5YR 5/6	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-7, UPL

Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #44-A-19A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%

Subregion (LRR or MLRA): n/a Lat: 37.563797505 Long: -78.129529420 Datum: _____

Soil Map Unit Name: Wateree sandy loam NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag D-84.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-7, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	30%	YES	FACU
2. Pinus taeda	25%	YES	FAC
3.			
4.			
5.			
6.			
	55% = Total Cover		

50% of total cover: 27.5% 20% of total cover: 11%

Sapling Stratum (Plot size: 20'x20')			
1. Juniperus virginiana	20%	YES	FACU
2. Ilex opaca	10%	YES	FAC
3.			
4.			
5.			
6.			
	30% = Total Cover		

50% of total cover: 15% 20% of total cover: 6%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	15%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		

50% of total cover: 7.5% 20% of total cover: 3%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	100 (A)		365 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-7, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-14	10YR 5/4	100					Sandy Loam	
14-18	10YR 6/6	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-8
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 44-A-19A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-2%
Subregion (LRR or MLRA): n/a Lat: 37.565319214 Long: -78.129595931 Datum: _____
Soil Map Unit Name: Wateree sandy loam NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag D-121.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-8

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	20%	YES	FAC
2. Acer rubrum	15%	YES	FAC
3. Platanus occidentalis	15%	YES	FACW
4.			
5.			
6.			
	50% = Total Cover		

50% of total cover: 25% 20% of total cover: 10%

Sapling Stratum (Plot size: 20'x20')			
1. Acer rubrum	20%	YES	FAC
2. Liquidambar styraciflua	15%	YES	FAC
3.			
4.			
5.			
6.			
	35% = Total Cover		

50% of total cover: 17.5% 20% of total cover: 7%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		

50% of total cover: 7.5% 20% of total cover: 3%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Sandy Loam	
3-18	10YR 6/1	90	7.5YR 5/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-8, UPL
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #44-A-19A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.565319214 Long: -78.129595931 Datum: _____
Soil Map Unit Name: Wateree sandy loam NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag D-121.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-8, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	30%	YES	FACU
2. Pinus taeda	30%	YES	FAC
3.			
4.			
5.			
6.			
	60% = Total Cover		

50% of total cover: 30% 20% of total cover: 12%

Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	20%	YES	FACU
2.			
3.			
4.			
5.			
6.			
	20% = Total Cover		

50% of total cover: 10% 20% of total cover: 4%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		

50% of total cover: 10% 20% of total cover: 4%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-8, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Sandy Loam	
6-14	10YR 6/4	100					Sandy Loam	
14-18	10YR 6/6	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/5/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-9

Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 2-4%

Subregion (LRR or MLRA): n/a Lat: 37.5700 Long: -78.1200 Datum: _____

Soil Map Unit Name: Poindexter-Wedowee complex NWI classification: R3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag E-389.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 5"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-9

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	25%	YES	FAC
2. Betula nigra	25%	YES	FAC
3.			
4.			
5.			
6.			
	50% = Total Cover		

50% of total cover: 25% 20% of total cover: 10%

Sapling Stratum (Plot size: 20'x20')			
1. Liquidambar styraciflua	20%	YES	FAC
2. Acer rubrum	15%	YES	FAC
3.			
4.			
5.			
6.			
	35% = Total Cover		

50% of total cover: 17.5% 20% of total cover: 7%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		

50% of total cover: 7.5% 20% of total cover: 3%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Sandy Loam	
4-18	10YR 6/1	90	7.5YR 5/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/2/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-9, UPL
Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #45-A-1
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.5700 Long: -78.1200 Datum: _____
Soil Map Unit Name: Poindexter-Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag E-389.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-9, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	40%	YES	FACU
2. Pinus taeda	10%	YES	FAC
3.			
4.			
5.			
6.			
	50%	= Total Cover	

50% of total cover: 25% 20% of total cover: 10%

Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	20%	YES	FACU
2. Juniperus virginiana	20%	YES	FACU
3.			
4.			
5.			
6.			
	40%	= Total Cover	

50% of total cover: 20% 20% of total cover: 8%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	10%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10%	= Total Cover	

50% of total cover: 5% 20% of total cover: 2%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	100 (A)		390 (B)

Prevalence Index = B/A = 3.90

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-9, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Sandy Loam	
6-18	10YR 6/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/9/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-10

Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-A-1

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%

Subregion (LRR or MLRA): n/a Lat: 37.571944626 Long: -78.121921343 Datum: _____

Soil Map Unit Name: Chewacla and Monocan soils/Poindexter Wedowee complex NWI classification: PAB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag E-184.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0"

Water Table Present? Yes X No _____ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 2"

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-10

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 20'x20')			
1. Betula nigra	5%	YES	FACW
2. Lindera benzoin	5%	YES	FAC
3.			
4.			
5.			
6.			
	10% = Total Cover		

50% of total cover: 5% 20% of total cover: 2%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	90%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90% = Total Cover		

50% of total cover: 45% 20% of total cover: 18%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Large, broad low lying area next to a toe of slope feature resulting in a saturated floodplain.

SOIL

Sampling Point: DP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	100					Sandy Loam	
5-18	10YR 7/1	85	7.5YR 6/6	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/9/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-10, UPL
Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map #45-A-1
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 4-6%
Subregion (LRR or MLRA): n/a Lat: 37.571944626 Long: -78.812192134 Datum: _____
Soil Map Unit Name: Poindexter Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag E-184.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-10, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	20%	YES	FACU
2. Fagus grandifolia	30%	YES	FACU
3.			
4.			
5.			
6.			
	50% = Total Cover		

50% of total cover: 25% 20% of total cover: 10%

Sapling Stratum (Plot size: 20'x20')			
1. Ilex opaca	20%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	20% = Total Cover		

50% of total cover: 10% 20% of total cover: 4%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		

50% of total cover: 10% 20% of total cover: 4%

Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		

50% of total cover: 5% 20% of total cover: 2%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-10, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-18	10YR 5/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/9/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-11
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 37-A-69
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-2%
Subregion (LRR or MLRA): n/a Lat: 37.570448660 Long: -78.125199141 Datum: _____
Soil Map Unit Name: Poindexter-Wedowee complex NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag F-28.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0"
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 4"

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-11

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20%	YES	FAC
2. Acer rubrum	20%	YES	FAC
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Sapling Stratum (Plot size: 20'x20')			
1. Lindera benzoin	20%	YES	FAC
2. Ilex opaca	15%	YES	FAC
3. Carpinus caroliniana	10%	YES	FAC
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 6/1	90	10YR 6/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/9/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-11, UPL
Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #37-A-69
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.570448660 Long: -78.125199141 Datum: _____
Soil Map Unit Name: Poindexter Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag F-28.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-11, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	40%	YES	FACU
2. Liriodendron tulipfera	20%	YES	FACU
3.			
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	10%	YES	FACU
2. Ilex opaca	10%	YES	FAC
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Sanguinaria canadensis	20%	YES	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	70	x 4 =	280
UPL species	20	x 5 =	100
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-11, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-10	10YR 5/4	100					Sandy Loam	
10-18	10YR 6/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/11/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-12
Investigator(s): Robert Goodwin, Hannah L. Miller Section, Township, Range: Tax Map # 37-A-69
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.574685795 Long: -78.128520405 Datum: _____
Soil Map Unit Name: Cecil sandy loam/Appling Helena complex NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag M-291.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 5"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-12

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	15%	YES	FAC
2. Liquidambar styraciflua	20%	YES	FAC
3.			
4.			
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Sapling Stratum (Plot size: 20'x20')			
1. Lindera benzoin	15%	YES	FAC
2. Carpinus caroliniana	20%	YES	FAC
3. Fagus grandifolia	10%	YES	FACU
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	5%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	15%	YES	FACW
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Sandy Loam	
4-18	10YR 6/2	90	7.5YR 5/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/11/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-12, UPL

Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map #37-A-69

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 3-5%

Subregion (LRR or MLRA): n/a Lat: 37.574685795 Long: -78.128520405 Datum: _____

Soil Map Unit Name: Cecil sandy loam/Appling Helena complex NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag M-291.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-12, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	85%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	85% = Total Cover		
50% of total cover: 42.5%	20% of total cover: 17%		
Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	15%	YES	FACU
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	85	x 3 =	255
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	100 (A)		315 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-12, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 6/3	100					Sandy Loam	
4-10	2.5Y 6/4	100					Sandy Loam	
10-18	10YR 6/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/11/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-13
Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map # 37-A-69
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-2%
Subregion (LRR or MLRA): n/a Lat: 37.5800 Long: -78.1300 Datum: _____
Soil Map Unit Name: Pacolet-Wateree complex NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Data point was taken next to flag H-333.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 7"
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-13

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20%	YES	FAC
2. Platanus occidentalis	15%	YES	FACW
3. Carpinus caroliniana	10%	YES	FAC
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	15%	YES	FAC
2. Fagus grandifolia	5%	YES	FACU
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	20%	YES	FACW
2. Smilax rotundifolia	15%	YES	FAC
3.			
4.			
5.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	100					Sandy Loam	
4-18	10YR 7/2	90	10YR 6/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/11/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-13, UPL
Investigator(s): Shannon D. Hill, Robert Goodwin Section, Township, Range: Tax Map #37-A-69
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.5800 Long: -78.1300 Datum: _____
Soil Map Unit Name: Pacolet Wateree complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag H-333.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-13, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	40%	YES	FACU
2.			
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	22.5%	YES	FACU
2. Ilex opaca	10%	YES	FAC
3. Juniperus virginiana	10%	YES	FACU
4.			
5.			
6.			
	42.5% = Total Cover		
50% of total cover: 21.25%	20% of total cover: 8.5%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	17.5%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	17.5% = Total Cover		
50% of total cover: 8.75%	20% of total cover: 3.5%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	100 (A)		390 (B)

Prevalence Index = B/A = 3.90

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-13, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-18	10YR 5/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/11/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-14
Investigator(s): Hannah L. Miller, Robert Goodwin Section, Township, Range: Tax Map # 37-A-69
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-2%
Subregion (LRR or MLRA): n/a Lat: 37.57201 Long: -78.2739 Datum: _____
Soil Map Unit Name: Pacolet-Wateree complex NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Data point was taken next to flag M-247.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 6"
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-14

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	20%	YES	FACW
2. Acer rubrum	20%	YES	FAC
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Sapling Stratum (Plot size: 20'x20')			
1. Lindera benzoin	30%	YES	FAC
2. Betula nigra	10%	YES	FACW
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	10%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	10%	YES	FACW
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	100					Sandy Loam	
4-18	10YR 6/2	80	5YR 5/8	20	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/11/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-14, UPL
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map #45-A-1
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.57201 Long: -78.12739 Datum: _____
Soil Map Unit Name: Pacolet Wateree complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag M-247.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-14, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	30%	YES	FACU
2. Fagus grandifolia	30%	YES	FACU
3.			
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	20%	YES	FAC
2.			
3.			
4.			
5.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-14, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					Sandy Loam	
6-14	10YR 6/4	100					Sandy Loam	
14-18	10YR 6/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-15
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-2-2-B
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.554954687 Long: -78.110977548 Datum: _____
Soil Map Unit Name: Helena sandy loam NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag J-47.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 6"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-15

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	15%	YES	FAC
2. Acer rubrum	15%	YES	FAC
3.			
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Sapling Stratum (Plot size: 20'x20')			
1. Betula nigra	20%	YES	FACW
2. Carpinus caroliniana	20%	YES	FAC
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	15%	YES	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					Sandy Loam	
5-18	10YR 7/2	90	7.5YR 5/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-15, UPL
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map #45-2-2-B
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.554954687 Long: -78.110977548 Datum: _____
Soil Map Unit Name: Helena sandy loam NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag J-47.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-15, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	20%	YES	FACU
2. Fagus grandifolia	25%	YES	FACU
3.			
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	15%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	15%	YES	FACU
2. Sanguinaria canadensis	10%	YES	UPL
3. Oxalis violacea	15%	YES	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	60	x 4 =	240
UPL species	25	x 5 =	125
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-15, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	100					Sandy Loam	
4-18	10YR 6/3	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-16
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-2-2-B
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.554727859 Long: -78.110749076 Datum: _____
Soil Map Unit Name: Helena sandy loam NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag J-52.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0"
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 6"

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-16

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	15%	YES	FAC
2. Liquidambar styraciflua	10%	YES	FAC
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Sapling Stratum (Plot size: 20'x20')			
1. Betula nigra	10%	YES	FACW
2. Acer rubrum	20%	YES	FAC
3. Carpinus caroliniana	15%	YES	FAC
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Peltandra virginica	15%	YES	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	15%	YES	FACW
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					Sandy Loam	
5-18	10YR 7/2	85	7.5YR 5/6	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-16, UPL

Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map #45-2-2-B

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%

Subregion (LRR or MLRA): n/a Lat: 37.554727859 Long: -78.110749076 Datum: _____

Soil Map Unit Name: Helena sandy loam NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag J-52.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-16, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	20%	YES	FACU
2. Fagus grandifolia	10%	YES	FACU
3.			
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	20%	YES	FACU
2.			
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2. Oxalis violacea	20%	YES	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	70	x 4 =	280
UPL species	20	x 5 =	100
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-16, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-10	10YR 6/3	100					Sandy Loam	
10-18	10YR 6/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-17
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-2-2-B
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-3%
Subregion (LRR or MLRA): n/a Lat: 37.555110812 Long: -78.108852923 Datum: _____
Soil Map Unit Name: Chewacla and Monocan soils NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag L-9.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0"
Water Table Present?	Yes X	No _____	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 8"

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-17

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	10%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		

50% of total cover: 5% 20% of total cover: 2%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	90%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90% = Total Cover		

50% of total cover: 45% 20% of total cover: 18%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					Sandy Loam	
5-18	10YR 7/1	80	7.5YR 5/4	20	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-17, UPL
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-2-2-B
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.555110812 Long: -78.108852923 Datum: _____
Soil Map Unit Name: Chewacla and Monocan Soils NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag L-9.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-17, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	30%	YES	FACU
2. Fagus grandifolia	35%	YES	FACU
3.			
4.			
5.			
6.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 20'x20')			
1. Ilex opaca	25%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	10%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-17, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-18	10YR 5/6	100					Light Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-18
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-A-11
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.550114 Long: -78.113976 Datum: _____
Soil Map Unit Name: _____ NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag K-80.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-18

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	10%	YES	FACW
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	25%	YES	FACW
2. Ilex opaca	15%	YES	FAC
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	25%	YES	FACW
2. Microstegium vimineum	20%	YES	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	5%	YES	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Sphagnum moss present at this point.

SOIL Sampling Point: DP-18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Sandy Loam	
4-18	10YR 6/2	90	10YR 6/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-18, UPL
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-A-11
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.550114 Long: -78.113976 Datum: _____
Soil Map Unit Name: Chewacla and Monocan Soils NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag K-80.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-18, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	20%	YES	FACU
2. Fagus grandifolia	20%	YES	FACU
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	15%	YES	FAC
2. Ilex opaca	15%	YES	FACU
3.			
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2. Podophyllum peltatum	10%	YES	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	75	x 4 =	300
UPL species	10	x 5 =	50
Column Totals:	100 (A)		395 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-18, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-18	10YR 6/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-19
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-A-11
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.547389 Long: -78.115908 Datum: _____
Soil Map Unit Name: _____ NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag K-147.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 5"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-19

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Plantanus occidentalis	25%	YES	FACW
2.			
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	20%	YES	FAC
2. Acer rubrum	15%	YES	FAC
3.			
4.			
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	15%	YES	FACW
2. Smilax rotundifolia	10%	YES	FAC
3.			
4.			
5.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Sandy Loam	
5-18	10YR 6/2	85	10YR 7/8	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-19, UPL
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 45-A-11
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.547389 Long: -78.115908 Datum: _____
Soil Map Unit Name: Chewacla and Monocan Soils NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag K-147.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-19, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	30%	YES	FACU
2. Fagus grandifolia	35%	YES	FACU
3.			
4.			
5.			
6.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 20'x20')			
1. Ilex opaca	15%	YES	FAC
2. Acer rubrum	10%	YES	FAC
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	10%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-19, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-10	10YR 5/6	100					Sandy Loam	
10-18	10YR 6/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-20
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 45-A-1
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.569718227 Long: -78.114311751 Datum: _____
Soil Map Unit Name: Cecil sandy loam/Helena sandy loam NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Data point was taken next to flag G-13.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0"
Water Table Present? Yes X No _____ Depth (inches): 6"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-20

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus serrulata	65%	YES	FACW
2. Plantanus occidentalis	18%	YES	FACW
3.			
4.			
5.			
6.			
	83% = Total Cover		
50% of total cover: 41.5%	20% of total cover: 16.6%		
Sapling Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	10%	YES	FACW
2. Lonicera japonica	7%	YES	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	17% = Total Cover		
50% of total cover: 8.5%	20% of total cover: 3.4%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					Sandy Loam	
6-18	10YR 6/1	90	10YR 7/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/25/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-20, UPL
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #45-A-1
Landform (hillslope, terrace, etc.): Hillslope/Toe of slope Local relief (concave, convex, none): _____ Slope (%): 4-6%
Subregion (LRR or MLRA): n/a Lat: 37.569718227 Long: -78.114311751 Datum: _____
Soil Map Unit Name: Cecil sandy loam/Helena sandy loam NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag G-13.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-20, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	25%	YES	FACU
2. Fagus grandifolia	30%	YES	FACU
3.			
4.			
5.			
6.			
	55% = Total Cover		
50% of total cover: 27.5%	20% of total cover: 11%		
Sapling Stratum (Plot size: 20'x20')			
1. Ilex opaca	15%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-20, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 5/3	100					Sandy Loam	
5-18	10YR 5/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/27/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-21
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 45-A-1
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.573475342 Long: -78.119056408 Datum: _____
Soil Map Unit Name: Enon-Helena complex/Poindexter-Wedowee complex NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag G-76.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0"
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 6"

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-21

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	25%	YES	FACW
2.			
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Sapling Stratum (Plot size: 20'x20')			
1. Betula nigra	25%	YES	FACW
2. Acer rubrum	20%	YES	FAC
3. Carpinus caroliniana	15%	YES	FAC
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: 20'x20')			
1. Juncus effusus	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 7/1	90	10YR 6/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/27/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-21, UPL
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #45-A-1
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.573475342 Long: -78.119056408 Datum: _____
Soil Map Unit Name: Enon-Helena complex/Poindexter Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag G-76.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-21, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	25%	YES	FACU
2. Liquidambar styraciflua	25%	YES	FAC
3.			
4.			
5.			
6.			
	50% = Total Cover		

50% of total cover: 25% 20% of total cover: 10%

Sapling Stratum (Plot size: 20'x20')			
1. Juniperus virginiana	20%	YES	FACU
2. Carpinus caroliniana	15%	YES	FAC
3.			
4.			
5.			
6.			
	35% = Total Cover		

50% of total cover: 17.5% 20% of total cover: 7%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	15%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		

50% of total cover: 7.5% 20% of total cover: 3%

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-21, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-12	10YR 5/4	100					Sandy Loam	
12-18	10YR 5/4	100					Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/27/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-22
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 38-A-7
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-2%
Subregion (LRR or MLRA): n/a Lat: 37.572422026 Long: -78.113771911 Datum: _____
Soil Map Unit Name: Cecil sandy clay loam/Poindexter Wedowee complex NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag G-224.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 6"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-22

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Sapling Stratum (Plot size: 20'x20')			
1. Acer rubrum	15%	YES	FAC
2. Juniperus virginiana	10%	YES	FACU
3. Carpinus caroliana	10%	YES	FAC
4.			
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Kalmia latifolia	20%	YES	FACU
2. Juncus effusus	10%	YES	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	15%	YES	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Sandy Loam	
6-18	10YR 6/2	85	7.5YR 5/6	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/27/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-22, UPL
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #38-A-7
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 4-6%
Subregion (LRR or MLRA): n/a Lat: 37.572422026 Long: -78.113771911 Datum: _____
Soil Map Unit Name: Cecil sandy loam/Poindexter Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag G-224.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-22, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	25%	YES	FACU
2. Pinus taeda	20%	YES	FACU
3. Quercus alba	15%	YES	FACU
4.			
5.			
6.			
	60%	= Total Cover	

50% of total cover: 30% 20% of total cover: 12%

Sapling Stratum (Plot size: 20'x20')			
1. Quercus alba	20%	YES	FACU
2. Juniperus virginiana	20%	YES	FACU
3.			
4.			
5.			
6.			
	40%	= Total Cover	

50% of total cover: 20% 20% of total cover: 8%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	90
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-22, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					Sandy Loam	
4-18	2.5Y 6/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-23

Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 38-A-7

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-2%

Subregion (LRR or MLRA): n/a Lat: 37.574172302 Long: -78.116817341 Datum: _____

Soil Map Unit Name: Poindexter Wedowee Complex NWI classification: R3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag G-311.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-23

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	15%	YES	FAC
2. Acer rubrum	15%	YES	FAC
3. Liquidambar styraciflua	15%	YES	FAC
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Sapling Stratum (Plot size: 20'x20')			
1. Acer rubrum	15%	YES	FACW
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1. Vaccinium corymbosum	20%	YES	FACW
2.			
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Herb Stratum (Plot size: 20'x20')			
1. Athyrium angustum	20%	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 7/2	90	5YR 5/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-23, UPL
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #38-A-7
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 2-4%
Subregion (LRR or MLRA): n/a Lat: 37.574172302 Long: -78.116817341 Datum: _____
Soil Map Unit Name: Poindexter Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag G-311.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-23, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba	25%	YES	FACU
2. Liriodendron tulipfera	25%	YES	FACU
3. Quercus velutina	20%	YES	FACU
4.			
5.			
6.			
	70%	= Total Cover	

50% of total cover: 30% 20% of total cover: 12%

Sapling Stratum (Plot size: 20'x20')			
1. Juniperus virginiana	20%	YES	FACU
2. Quercus alba	10%	YES	FACU
3.			
4.			
5.			
6.			
	30%	= Total Cover	

50% of total cover: 15% 20% of total cover: 6%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-23, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/4	100					Sandy Loam	
4-18	10YR 6/4	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-24

Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 45-A-1

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%

Subregion (LRR or MLRA): n/a Lat: 37.574200597 Long: -78.119125193 Datum: _____

Soil Map Unit Name: Chewacla and Monocan soils/Poindexter Wedowee complex NWI classification: R3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag G-327.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-24

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	50%	YES	FACW
2. Liquidambar styraciflua	10%	NO	FAC
3.			
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	10%	YES	FACW
2. Acer rubrum	5%	YES	FAC
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Vaccinium corymbosum	10%	YES	FACW
2. Woodwardia areolata	10%	YES	FACW
3. Athyrium angustum	5%	YES	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 7/2	90	7.5YR 6/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-24, UPL
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #45-A-1
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 4-6%
Subregion (LRR or MLRA): n/a Lat: 37.574200597 Long: -78.119125193 Datum: _____
Soil Map Unit Name: Chewacla and Monocan soils/Poindexter Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag G-327.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-24, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	20%	YES	FACU
2. Fagus grandifolia	25%	YES	FACU
3.			
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Sapling Stratum (Plot size: 20'x20')			
1. Ilex opaca	15%	YES	FAC
2. Acer rubrum	10%	YES	FAC
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	15%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	15%	YES	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-24, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/3	100					Sandy Loam	
6-18	10YR 6/4	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018

Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-25

Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map # 45-A-1

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%

Subregion (LRR or MLRA): n/a Lat: 37.570037163 Long: -78.113701395 Datum: _____

Soil Map Unit Name: Chewacla and Monocan soils/Poindexter Wedowee complex NWI classification: R3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag G-437.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-25

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	20%	YES	FACW
2. Acer rubrum	5%	YES	FAC
3.			
4.			
5.			
6.			

25% = Total Cover

50% of total cover: 12.5% 20% of total cover: 5%

Sapling Stratum (Plot size: 20'x20')			
1. Acer rubrum	20%	YES	FACW
2.			
3.			
4.			
5.			
6.			

20% = Total Cover

50% of total cover: 10% 20% of total cover: 4%

Shrub Stratum (Plot size: 20'x20')			
1. Alnus serrulata	20%	YES	FACW
2.			
3.			
4.			
5.			
6.			

20% = Total Cover

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Athyrium angustum	20%	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

20% = Total Cover

50% of total cover: 10% 20% of total cover: 5%

Woody Vine Stratum (Plot size: 20'x20')			
1. Vitis riparia	15%	YES	FACW
2.			
3.			
4.			
5.			

15% = Total Cover

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Sandy Loam	
4-18	10YR 6/2	85	5YR 5/6	15	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-25, UPL
Investigator(s): Shannon D. Hill Section, Township, Range: Tax Map #45-A-1
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.570037163 Long: -78.113701395 Datum: _____
Soil Map Unit Name: Chewacla and Monocan soils/Poindexter Wedowee complex NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag G-437.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-25, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	20%	YES	FACU
2. Fagus grandifolia	25%	YES	FACU
3. Quercus alba	20%	YES	FACU
4.			
5.			
6.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 20'x20')			
1. Fagus grandifolia	15%	YES	FACU
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-25, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	100					Sandy Loam	
4-12	10YR 6/3	100					Sandy Loam	
12-18	10YR 6/4	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-26
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 38-A-7
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 0-2%
Subregion (LRR or MLRA): n/a Lat: 37.580490500 Long: -78.115965775 Datum: _____
Soil Map Unit Name: Chewacla and Monocan soils NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag O-55.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0"
Water Table Present?	Yes X	No _____	Depth (inches): 4"
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 2"

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-26

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	10%	YES	FACW
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Sapling Stratum (Plot size: 20'x20')			
1. Acer rubrum	15%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Peltandra virginica	30%	YES	OBL
2. Onoclea sensibilis	10%	YES	FACW
3. Sagitarria latifolia	10%	YES	OBL
4. Juncus effusus	15%	YES	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Sandy Loam	
4-18	10YR 6/1	80	5YR 5/8	20	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/30/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-26, UPL
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map #38-A-7
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 3-5%
Subregion (LRR or MLRA): n/a Lat: 37.580490500 Long: -78.115965775 Datum: _____
Soil Map Unit Name: Chewacla and Monocan soils NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag O-55.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-26, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	25%	YES	FACU
2. Fagus grandifolia	20%	YES	FACU
3.			
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 42.5%	20% of total cover: 9%		
Sapling Stratum (Plot size: 20'x20')			
1. Ilex opaca	15%	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2. Podophyllum peltatum	20%	YES	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	65	x 4 =	260
UPL species	20	x 5 =	100
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-26, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	100					Sandy Loam	
4-12	10YR 6/4	100					Sandy Loam	
12-18	10YR 7/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/31/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-27
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map # 38-A-7
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.578670227 Long: -78.113907052 Datum: _____
Soil Map Unit Name: Chewacla and Monocan soils NWI classification: R3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point was taken next to flag O-294.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- X Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes X No _____ Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-27

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliniana	15%	YES	FACW
2. Liquidambar styraciflua	15%	NO	FAC
3.			
4.			
5.			
6.			

30% = Total Cover

50% of total cover: 15% 20% of total cover: 6%

Sapling Stratum (Plot size: 20'x20')			
1. Carpinus caroliniana	15%	YES	FACW
2. Acer rubrum	15%	YES	FAC
3.			
4.			
5.			
6.			

30% = Total Cover

50% of total cover: 15% 20% of total cover: 6%

Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 20'x20')			
1. Athyrium angustum	20%	YES	FAC
2. Podophyllum peltatum	10%	YES	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

30% = Total Cover

50% of total cover: 15% 20% of total cover: 6%

Woody Vine Stratum (Plot size: 20'x20')			
1. Smilax rotundifolia	10%	YES	FAC
2.			
3.			
4.			
5.			

10% = Total Cover

50% of total cover: 5% 20% of total cover: 2%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Sandy Loam	
4-18	10YR 7/2	90	10YR 6/6	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Cumberland County Property City/County: Cumberland County Sampling Date: 4/31/2018
Applicant/Owner: CWV, LLC; c/o James H. Martin State: VA Sampling Point: DP-27, UPL
Investigator(s): Hannah L. Miller Section, Township, Range: Tax Map #38-A-7
Landform (hillslope, terrace, etc.): Hillslope/Toe of Slope Local relief (concave, convex, none): _____ Slope (%): 1-3%
Subregion (LRR or MLRA): n/a Lat: 37.578670227 Long: -78.113907052 Datum: _____
Soil Map Unit Name: Chewacla and Monocan soils NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point was taken adjacent to flag O-294.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-27, UPL

Tree Stratum (Plot size: 20'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipfera	20%	YES	FACU
2. Fagus grandifolia	15%	YES	FACU
3.			
4.			
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Sapling Stratum (Plot size: 20'x20')			
1. Ilex opaca	15%	YES	FAC
2. Fagus grandifolia	10%	YES	FACU
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Shrub Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 20'x20')			
1. Polystichum acrostichoides	20%	YES	FACU
2. Podophyllum peltatum	20%	YES	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Woody Vine Stratum (Plot size: 20'x20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	65	x 4 =	260
UPL species	20	x 5 =	100
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-27, UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	100					Sandy Loam	
4-12	10YR 6/4	100					Sandy Loam	
12-18	10YR 6/6	100					Sandy C. Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

August 22, 2019

PRELIMINARY JURISDICTIONAL DETERMINATION

Western Virginia Regulatory Section
NAO-2018-0995 (Muddy Creek)

CWV LLC
C/o James Martin
P.O. Box 363
Cobbs Creek, Virginia 23035

Dear Mr. Martin:

This letter is in regard to your request for a preliminary jurisdictional determination for waters of the U.S. (including wetlands) on project know as Green Ridge. The approximately 1300 acre project is located, north of US Route 60, Anderson Highway, near the intersection of Pine Grove Road, in Cumberland County, Virginia.

The map entitled "Wetland Delineation Map, Cumberland County, Virginia, Hamilton District", by Koontz Bryant Johnson Williams Group dated July 10, 2018 with a revision date of May 10, 2019 and Corps date stamped as received May 31, 2019 (*copy enclosed)* provides the locations of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Easter Mountain and Piedmont Region and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

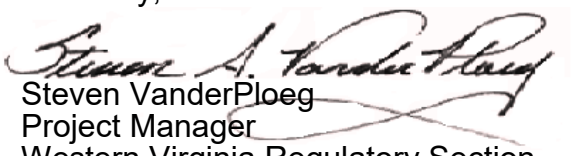
This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination and the attachments hereto if you agree with the

determination, or you may request and obtain an approved jurisdictional determination. This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application."

Enclosed is a copy of the "Preliminary Jurisdictional Determination Form". Please review the document, sign, and return one copy to this office, either via email at steven.a.vanderploeg@usace.army.mil or via standard mail to US Army Corps of Engineers, Regulatory Office, and ATTN: Steven VanderPloeg 9100 Arboretum Parkway, Suite 235, Richmond Virginia 23510 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands can be relied upon for no more than five years from the date of this letter. New information may warrant revision.

If you have any questions, please contact Steven VanderPloeg either via telephone at (804) 323-7071 or via email at steven.a.vanderploeg@usace.army.mil .

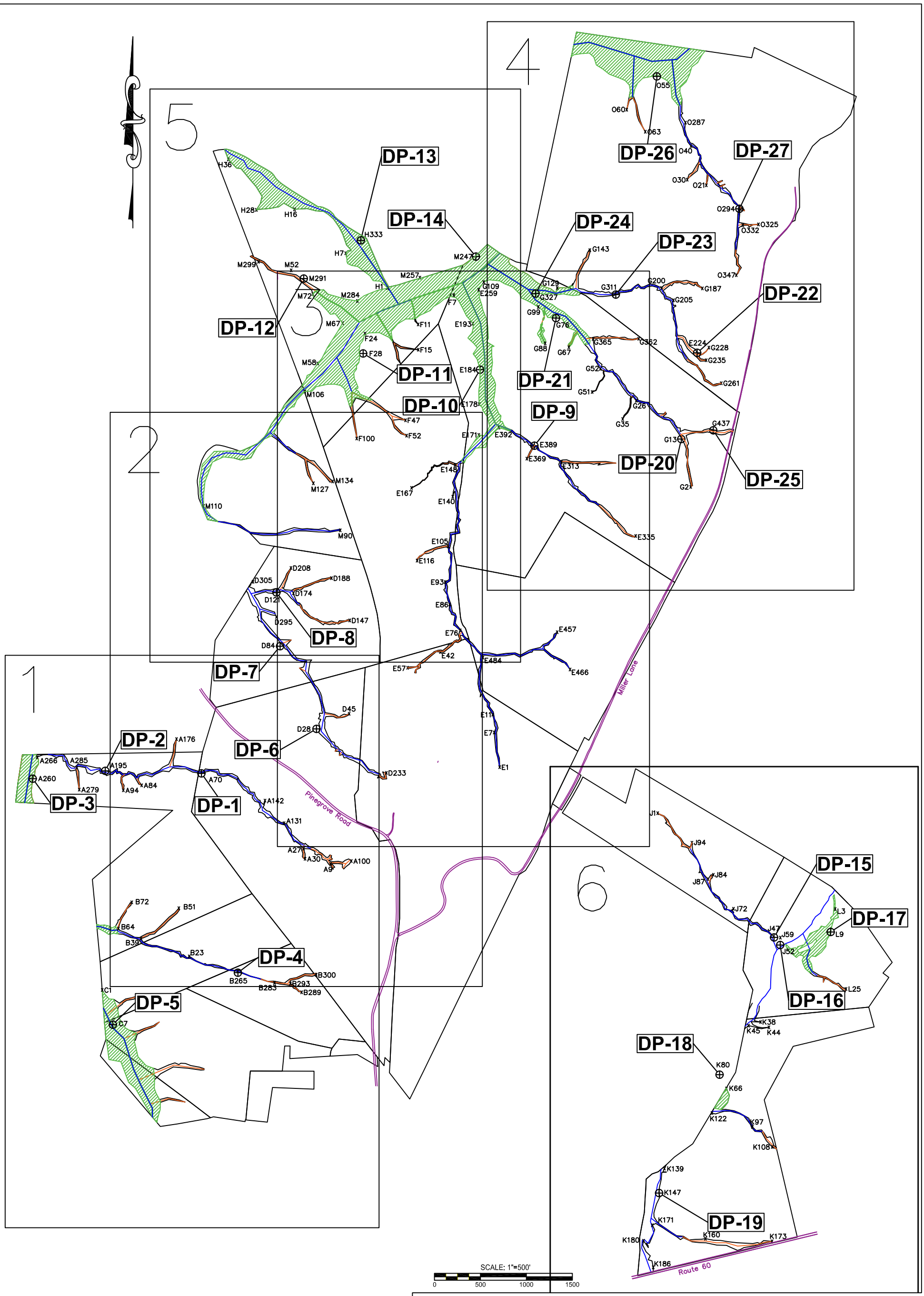
Sincerely,



Steven VanderPloeg
Project Manager
Western Virginia Regulatory Section

Enclosure(s):
Delineation Map
Preliminary Jurisdictional Determination Form

Cc: Mr. Brent Johnson Koontz Bryant Johnson Williams Group
Justin Brown, Virginia Department of Environmental Quality

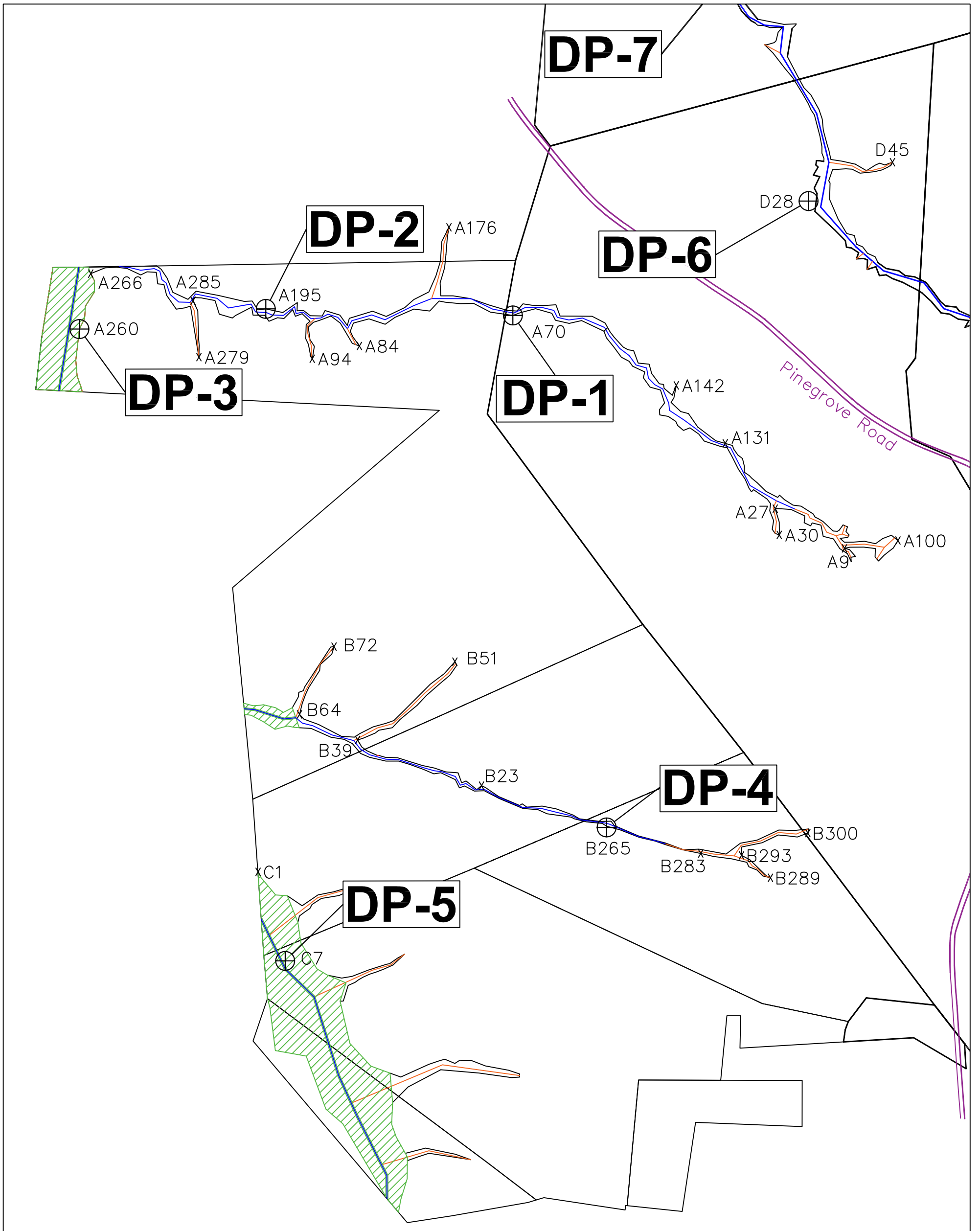


Legend		
Color	Classification	Total Area Quantities
	PFO Wetlands	51.63 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	24,235 LF

WETLAND DELINEATION MAP
CUMBERLAND COUNTY, VIRGINIA
HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	Aug 22, 2018	May 31, 2019	1" = 500'

KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd. Suite 202
Henrico, Va 23229
(804) 740-9200
FAX (804) 740-7338
www.KBJWgroup.com



Legend		
Color	Classification	Area Quantities
	PFO Wetlands	62.24 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	23,579.41 LF

SECTION 1

WETLAND DELINEATION MAP

CUMBERLAND COUNTY, VIRGINIA

HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	July 10, 2018	May 10, 2019	1" = 500'

KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd. Suite 202
Henrico, Va 23229
(804) 740-9200
FAX (804) 740-7338
www.KBJWgroup.com

F47
F52
F100
E171
E148
M134
M127
E167
M110
E140
M90
E105
E116
D208
D188
D305
D174
D121
E93
D147
D295
E86
DP-8
E76
D84
E42
DP-7
E57
D45
D28
DP-2
A176
DP-6
D233
A195
A84
A94
A70
A142
Pinegrove Road
DP-1
A131
A27
A30
A100
A9
B72
B51
B64
B265
B283
SCALE: 1"=500'
0 500 1000 1500

Legend

Color	Classification	Area Quantities
	PFO Wetlands	62.24 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	23,579.41 LF

SECTION 2
WETLAND DELINEATION MAP
CUMBERLAND COUNTY, VIRGINIA
HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	July 10, 2018	May 10, 2019	1" = 500'

KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd. Suite 202
Henrico, Va 23229
(804) 740-9200
FAX (804) 740-7338
www.KBJWgroup.com

DP-11

DP-21

DP-10

DP-9

DP-8

DP-

M291 M257 H1 G109 G129 G311 M72 M284 E259 G327 F7 G99 M67 F11 E193 G76 F24 G365 F15 G88 G67 F28 M58 E184 G52 M106 G51 E178 G26 F47 G35 F52 F100 E171 E392 E389 E369 E313 E148 M134 M127 E167 E140 M90 E105 E116 D208 D188 E93 D174 E86 D147 D295 E76 E457 E42 E57 E484 E466 D45 E11 D28 E7 D233 E1

SCALE: 1"=500'

0 500 1000 1500

Miller Lane

Legend

Color	Classification	Area Quantities
	PFO Wetlands	62.24 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	23,579.41 LF

SECTION 3

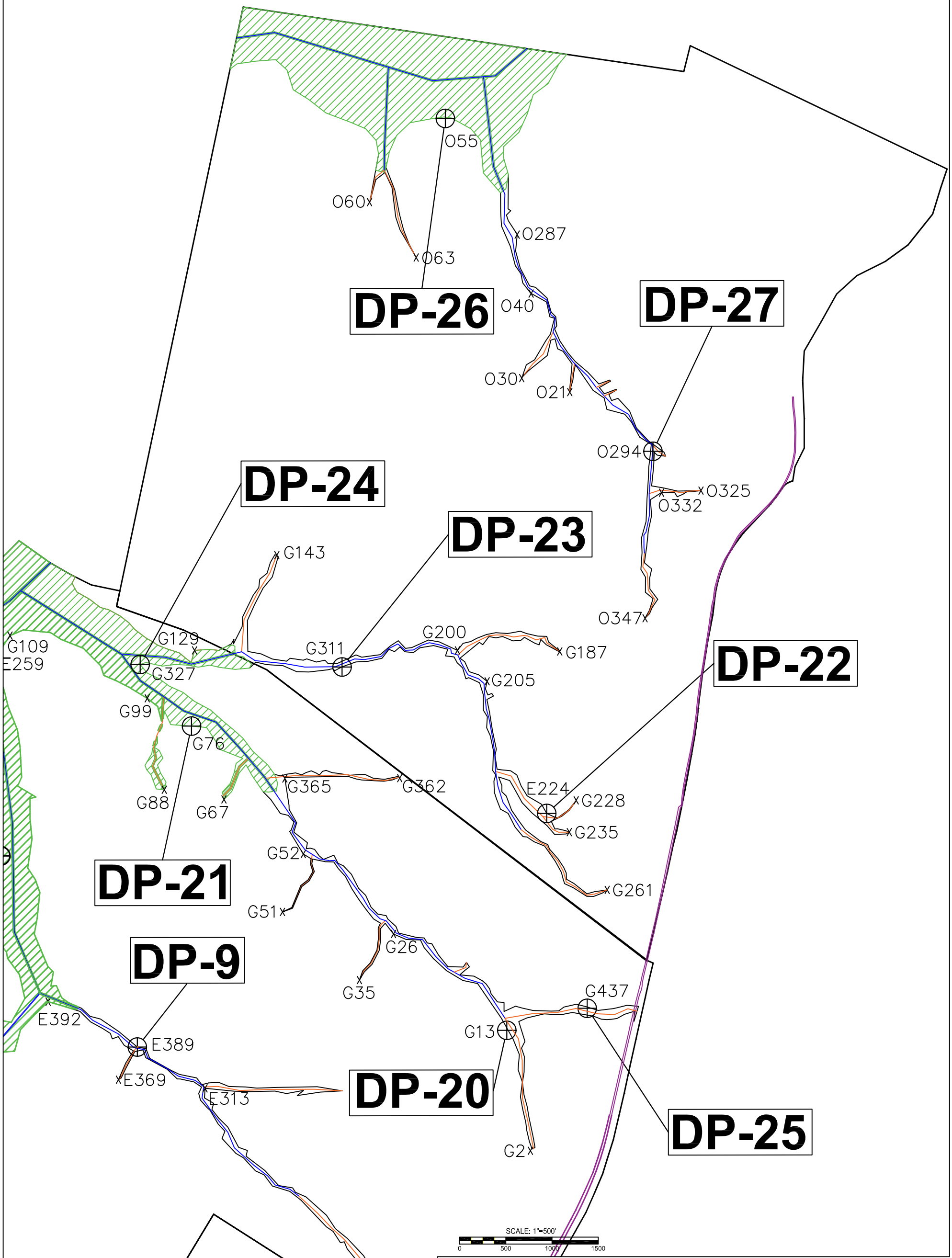
WETLAND DELINEATION MAP

CUMBERLAND COUNTY, VIRGINIA

HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	July 10, 2018	May 10, 2019	1" = 500'

KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd. Suite 202
Henrico, Va 23229
(804) 740-9200
FAX (804) 740-7338
www.KBJWgroup.com



Legend		
Color	Classification	Area Quantities
	PFO Wetlands	62.24 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	23,579.41 LF

SECTION 4
WETLAND DELINEATION MAP
CUMBERLAND COUNTY, VIRGINIA
HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	July 10, 2018	May 10, 2019	1" = 500'

KOONTZ BRYANT JOHNSON WILLIAMS
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Henrico, Va 23229
(804) 740-9200
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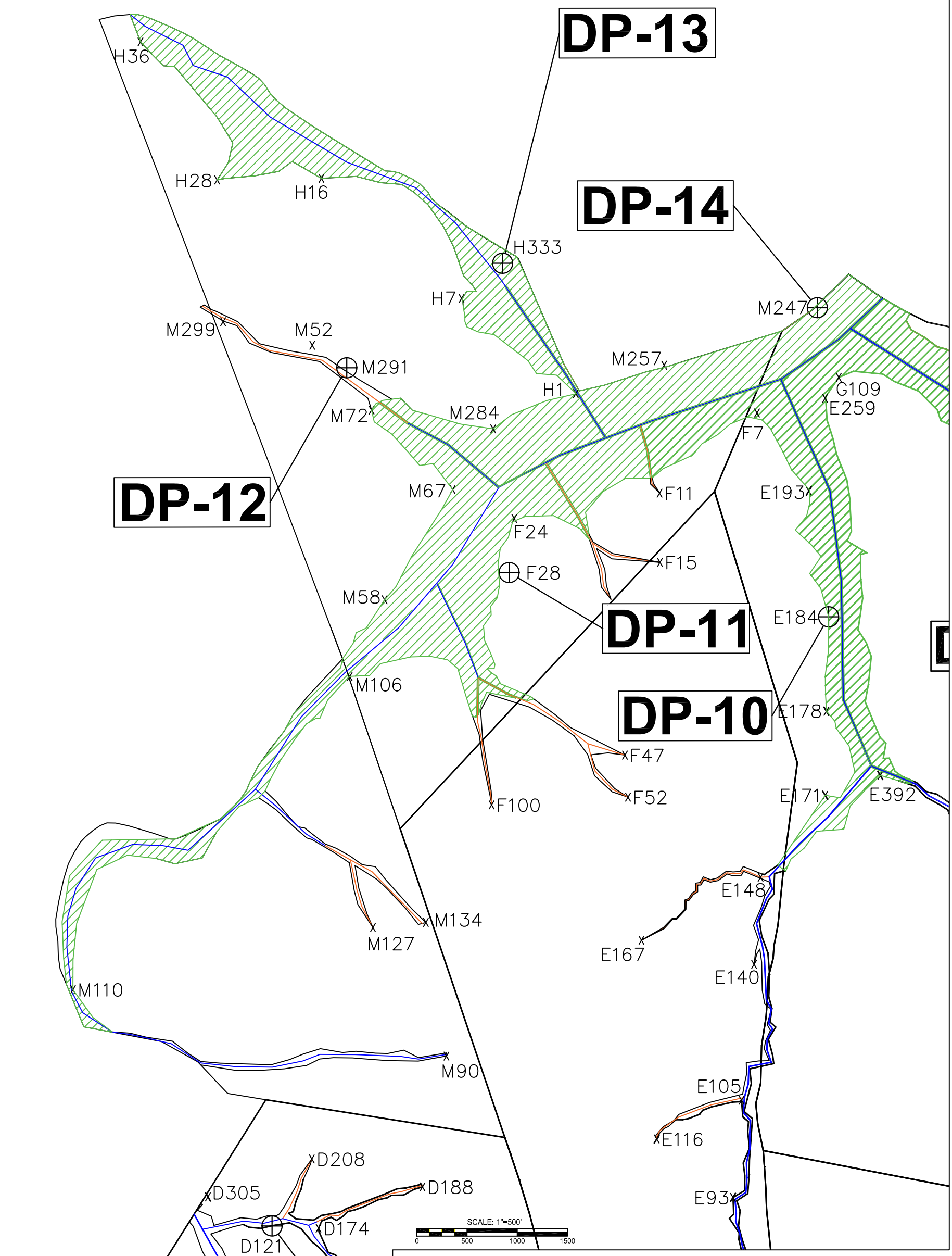

Legend		
Color	Classification	Area Quantities
	PFO Wetlands	62.24 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	23,579.41 LF

SECTION 5
WETLAND DELINEATION MAP
CUMBERLAND COUNTY, VIRGINIA
HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	July 10, 2018	May 10, 2019	1" = 500'

KBJW
KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd. Suite 202
Henrico, Va 23229
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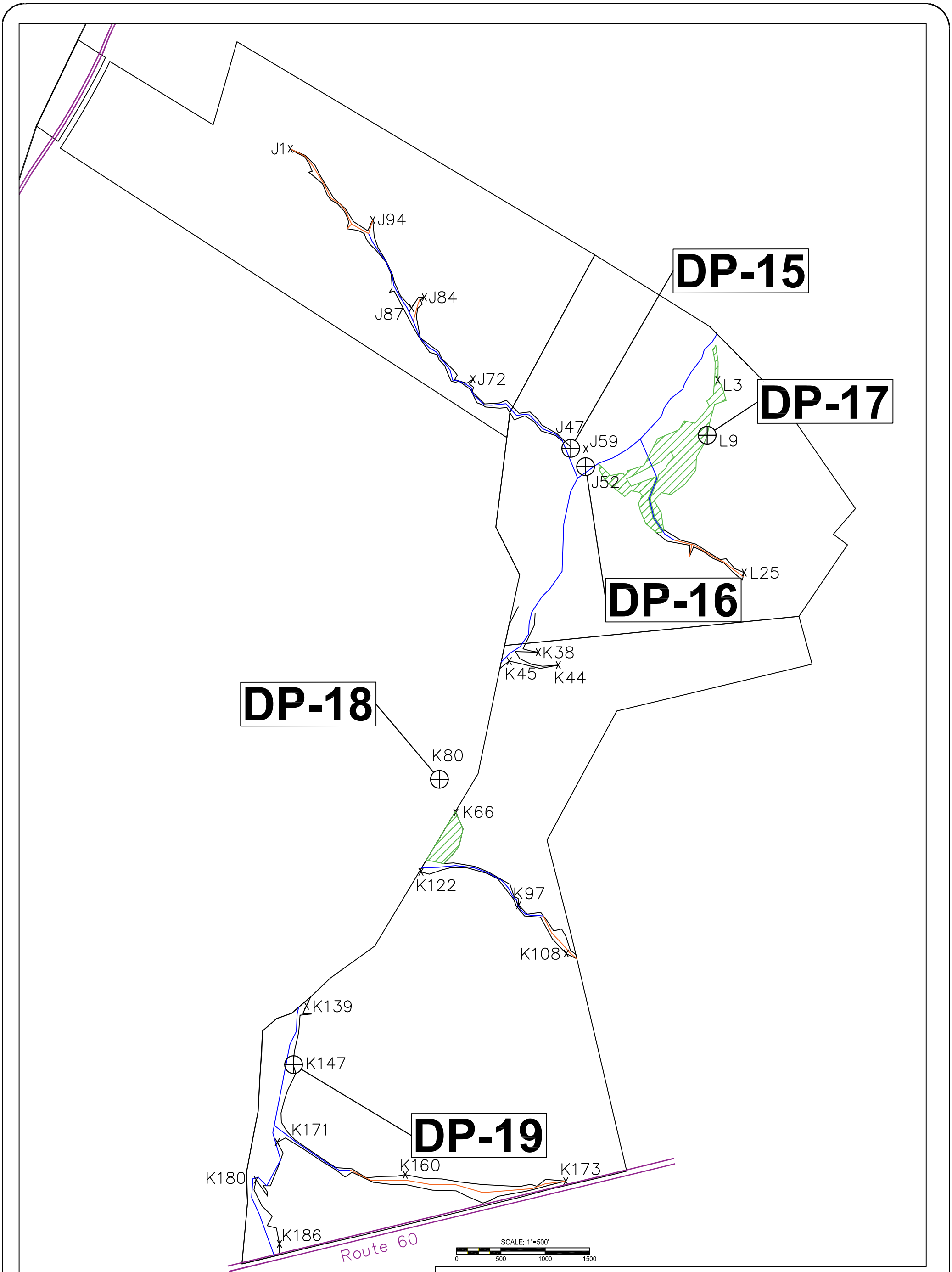

Legend		
Color	**Classification**	**Area Quantities**
	PFO Wetlands	62.24 acres
	R3/R4 Streams	45,213 LF
	EPH Ephemeral Channel	23,579.41 LF

SECTION 6

WETLAND DELINEATION MAP

CUMBERLAND COUNTY, VIRGINIA

HAMILTON DISTRICT

PROJECT:	DATE:	REVISED	SCALE:
2017-890	July 10, 2018	May 10, 2019	1" = 500'

KOONTZ BRYANT JOHNSON WILLIAMS
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Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 8/23/2019

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:
Brent E. Johnson, Koontz Bryant Johnson Williams

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:
NAO-2018-0995 CWV LLC - Pine Grove Road - Green Ridge

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Virginia County/parish/borough: Cumberlar City: N/A

Center coordinates of site (lat/long in degree decimal format): 37.584008, -78.113498

Lat.: xx.xxx° Long.: yy.yyy°

Universal Transverse Mercator:

Name of nearest waterbody: Muddy Creek and Maple Swamp Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☑ Field Determination. Date(s): 7/27/2018 & 8/23/2018

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
SA	37.559960	-78.132433	5210 LF	Non wetland waters	404
WA	37.559960	-78.133166	1.91 Ac	Wetland waters	404
SB	37.554453	-78.133166	3651 LF	Non wetland waters	404
WB	37.554453	-78.133166	0.3 Ac	Wetland waters	404
SC	37.550000	-78.140000	3290 LF	Non wetland waters	404
WC	37.550000	-78.140000	6.6 Ac	Wetland waters	404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: KBJW Group.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [x] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [x] U.S. Geological Survey Hydrologic Atlas: _____.
  - [ ] USGS NHD data.
  - [x] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 1"=24,000' - Whiteville
- [x] Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey 2019
- [x] National wetlands inventory map(s). Cite name: _____.
- [ ] State/local wetland inventory map(s): _____.
- [ ] FEMA/FIRM maps: _____.
- [ ] 100-year Floodplain Elevation is: ____. (National Geodetic Vertical Datum of 1929)
- [ ] Photographs: [x] Aerial (Name & Date): Corps GIS, Google Earth 2019.
  or [ ] Other (Name & Date): _____.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [ ] Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____	_____
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

ATTACHMENT PTA-XXIII - PROXIMITY TO GEOLOGIC HAZARDS OR SEISMIC ZONES

In accordance with *Virginia Solid Waste Management Regulations* (*VSWMR*) 9VAC20-81-120 - Siting Requirements, subsection 9VAC20-81-120.B.2, a municipal solid waste landfill may not be sited where on-site or local geological or man-made features or events may result in sudden or non-sudden events and subsequent failure of structural components or containment structures.

With regards to the above citation, *VSWMR* 9VAC20-81-120.C.3.B.1 and 9VAC20-81-120.C.3.B.2) provide siting criteria regarding geologic faults and seismic impact zones:

> (1) Within 200 feet of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the director that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the facility and will be protective of human health and the environment; or
>
> (2) Within seismic impact zones, unless the owner or operator demonstrates to the director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

The following discussion addresses the siting criteria for young faults and seismic impact zones.

Ground Displacement by Young Geologic Faults

VSWMR 9VAC20-81-120.C.3.b(1) restricts siting of landfills within 200 feet of a geologic fault that demonstrated movement within the Holocene epoch (i.e., young faults). The Holocene epoch spans from 11.7 thousand years ago to today, and is part of the Quaternary Period. The Quaternary Period is divided into two epochs: the earlier Pleistocene (2.588 million years ago to 11.7 thousand years ago) and the later Holocene (11.7 thousand years to today).

The U.S. Geological Survey (USGS) documented faults or fault-related features in the United States with movement known or suspected to have occurred in the Quaternary (USGS, 2006). This resource presents a conservative assessment of the potential for young faults to be present within 200 feet of the proposed landfill and related containment features, because it increases the criteria for fault identification from the Holocene (11,700 years ago) to the entire Quaternary (2,588,000 years ago).

Table PTA-XXIII-1, below, summarizes the USGS assessment of known or potential Quaternary faults in the region surrounding the proposed Facility (USGS, 2006). **Figure PTA-XXIII-1** illustrates the proposed landfill location and the approximate location of the potential fault or fault-like features identified by USGS (2006).

Table PTA-XXIII-1 **Summary of Known or Inferred Quaternary age Faults or Fault-like Features (USGS, 2006). See Figure PTA-XXIII-1 for Referenced # Feature Location**	
1	**Feature Identity**: Central Virginia seismic zone **CEUS Class (see note)**: A **Description**: Moderate level of diffuse seismicity. 5.8 M earthquake occurred on August 23, 2011. Hypocenter was in Louisa County, 5 miles SSW of Mineral and 37 miles NW of Richmond. Thought to be of tectonic origin with liquefaction fields caused by moderate to large historical and Holocene earthquakes.
2	**Feature Identity**: Pembroke faults **CEUS Class (see note)**: B **Description**: Small, normal faults with up to 11 m displacement. Non-tectonic origin. Fault trace fillings contain delicate grain-scale textures precluding sudden slip. Likely caused by dissolution of underlying carbonate bedrock.
3	**Feature Identity**: Linside fault zone **CEUS Class (see note)**: C **Description**: Located on northwest edge of the Giles County Seismic Zone (see earlier discussion). Normal fault zone displacing Devonian folded bedrock. No Quaternary movement of the fault zone is demonstrated.
4	**Feature Identity**: Everona fault – Mountain Run fault zone **CEUS Class (see note)**: C **Description**: Faults appear to have reactivated with Mesozoic extension of the Culpeper Basin. Quaternary age movement has not been demonstrated for the fault zone.
5	**Feature Identity**: Lebanon Church fault **CEUS Class (see note)**: C **Description**: Reverse fault offsets base of gravels overlying Precambrian bedrock. No Quaternary movement of the fault is demonstrated.

6	**Feature Identity**: Old Hickory faults **CEUS Class (see note)**: C **Description**: Small reverse faults with up to 6 m of throw placing Coastal Plain gravels over Paleozoic metamorphic bedrock. Faulting was coeval with deposition of faulted Coastal Plain sediment of Pliocene age. No Quaternary movement of the fault zone is demonstrated.
7	**Feature Identity**: Stanleytown – Villa Heights faults **CEUS Class (see note)**: C **Description**: Both faults are short (<300 m) with steep dip and <6 m slip. Both faults appear to be related to landslides.

Table PTA-XXIII-1 Notes on CEUS feature class designation (USGS, 2006):

- Class A fault = Geologic evidence demonstrates the existence of a Quaternary fault of tectonic origin, whether the fault is exposed for mapping or inferred from liquefaction or other deformational features.

- Class B fault = Geologic evidence demonstrates the existence of a fault or suggests Quaternary deformation, but either (1) the fault might not extend deeply enough to be a potential source of significant earthquakes, or (2) the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A.

- Class C fault = Geologic evidence is insufficient to demonstrate (1) the existence of tectonic fault, or (2) Quaternary slip or deformation associated with the feature.

As illustrated in Figure PTA-XXIII-1, the closest identified young fault or fault-like feature with possible Quaternary movement is associated with the Central Virginia Seismic Zone (Reference #1 in Table PTA-XXIII-1; CEUS Class A). The center of this zone is located approximately 20 miles from the proposed landfill, which does not contravene the siting criteria under 9VAC20-81-120.C.3.b(1).

In conclusion, the proposed landfill is not located within 200 feet of a geologic fault that demonstrated movement within the Holocene epoch.

Seismic Hazards

VSWMR 9VAC20-81-120.C.3.b(1) restricts siting of landfills within a seismic impact zone unless the owner or operator demonstrates that all containment structures are designed to resist the maximum anticipated seismically-induced horizontal ground acceleration in lithified earth

material. Note that the following assessment incorporates potential soil amplification that could increase the horizontal acceleration from deeper lithified earth material. The information presented below to address seismic impact zones is generally consistent with the 1993 (most recently available) Virginia Department of Environmental Quality (VDEQ) Guidance Document LPR-SW-02-1993 for evaluating landfill Part A demonstration requirements.

The USGS updated since 1993 the probabilistic earthquake-induced ground motion model (Petersen, et al.; 2014), which was used to identify seismic impact zones and estimate peak horizontal ground acceleration with a 2,500-year recurrence period. Note that the 1993 Guidance references a 10% probability of occurrence over 250 years, while the 2014 model references 2% probably of occurrence over 50 years, but this is an equivalent recurrence period of 2,500 years.

Summary of Seismic Impact Area

Probabilistic earthquake-induced ground motion was evaluated for the proposed landfill based on work completed by the USGS. The proposed landfill is located within the Central Virginia Seismic Zone, which approximately corresponds to probabilistic ground acceleration exceeding 0.1-g (10% of gravity) shown in **Figure PTA-XXIII-2** (darker blue to yellow shaded area) (taken from USGS, 2014).

Ground Shaking Hazard Levels

Based on the USGS (2014) modeling, peak ground acceleration estimates for the proposed landfill may range up to 0.2-g with a 2% probability of occurring in 50 years (i.e., mean return period of approximately 2,500 years) (Figure PTA-XXIII-2).

The peak horizontal ground acceleration estimate taken from USGS (2014) incorporates potential soil amplification based on sites between class B (rock) and C (dense soil). This site class criteria corresponds to an average shear wave velocity of 760 m/sec in the top 30 meters of soil, which is considered to be representative of conditions underlying the proposed landfill consisting of relatively shallow bedrock and saprolite with overburden.

Landfill Containment Structure Design Considerations

In general, earthquake-induced seismic hazards for the proposed landfill are considered to be moderate to low, based on probabilistic estimates of ground motion discussed above. The proposed landfill design will incorporate a seismic coefficient resulting from potential earthquake-induced peak horizontal ground acceleration as discussed below.

Seismic stability studies prepared for the U.S. Army Corps of Engineers (Hynes-Griffin and Franklin, 1984) demonstrated the efficacy in designing waste disposal facilities for one-half the estimated peak acceleration (i.e., 50% of 0.2-g), which represents more sustained (i.e., potentially damaging) ground motion, rather than the near-instantaneous transient peak acceleration. Therefore, the Part B permit application for the proposed landfill will incorporate a design seismic coefficient of

0.10-g.

Soil liquefaction is a phenomenon often associated with seismic activity in which saturated, non-cohesive soils temporarily lose their strength and liquefy (i.e., behave like viscous liquid) when subjected to forces such as intense and prolonged ground shaking. Areas susceptible to liquefaction may include soils that are generally sandy or silty and are generally located along rivers, streams, lakes, and shorelines or in areas with shallow groundwater. Soil, overburden and saprolite underlying the proposed landfill containment structures do not demonstrate characteristics that are susceptible to liquefaction, and therefore seismically-induced soil liquefaction should not be considered further in the containment structure design components.

Bibliography-

Crone, A. J. and Wheeler, R. L., (2000). Data for Quaternary faults, liquefaction features, and possible tectonic features in the Central and Eastern United States, east of the Rocky Mountain front. U.S. Geological Survey, Open-File Report 00-260.

Hynes-Griffin, M. E. and Franklin, A. G., 1984. Rationalizing the Seismic Coefficient Method. Miscellaneous Paper GL-41-18. Army Engineer Waterways Experiment Station, Vicksburg, MS. Pp 41

Law, R.D., Pope, M.C., Wirgart, R.H., Eriksson, K.A., Robinson, E.S., Sayer, S., Phinney, E.J., Bollinger, G.A., (1994). Geologically recent near-surface faulting and folding in Giles County, southwest Virginia: New exposures of extensional and apparent reverse faults in alluvial sediments between Pembroke and Pearisburg. Proceedings of the Twenty-First Water Reactor Safety Information Meeting. Volume 3, Primary system integrity; Aging research, products and applications; Structural and seismic engineering; Seismology and geology.

Petersen, M.D., Moschetti, M. P., Powers, P.M., Mueller, C. S., Haller, K. M., Frankel, A. D., Zeng, Y., Rezaeian, S., Harmsen, S. C., Boyd, O. S., Field, N., Chen, R., Chen, Rukstales, K. S., Luco, N., Wheeler, R.L., Williams, R. A., and Olsen, A. H., (2014). Documentation for the 2014 Update of the United States National Seismic Hazard Maps. U.S. Geological Survey Open-File Report 2014–1091.

USGS, 2006. Quaternary fault and fold database for the United States, accessed Jan 15, 2015, from U.S. Geological Survey web site: http//earthquakes.usgs.gov/regional/qfaults/.

Wheeler, R. L., (2006). Quaternary tectonic faulting in the Eastern United States. Engineering Geology 82 (2006) 165– 186.

Quaternary Fault Areas

Faults and associated folds in the United States that are believed to be sources of M>6 earthquakes during the Quaternary (the past 1,600,000 years). U.S. Geological Survey, 2006, Quaternary fault and fold database for the United States, accessed Sept 25, 2018, from USGS web site: http//earthquake.usgs.gov/hazards/qfaults/.

Crone, A. J. and Wheeler, R. L., (2000). Data for Quaternary faults, liquefaction features, and possible tectonic features in the Central and Eastern United States, east of the Rocky Mountain front. U.S. Geological Survey, Open-File Report 00-260.

Wheeler, R. L., (2006). Quaternary tectonic faulting in the Eastern United States. Engineering Geology 82 (2006) 165– 186.

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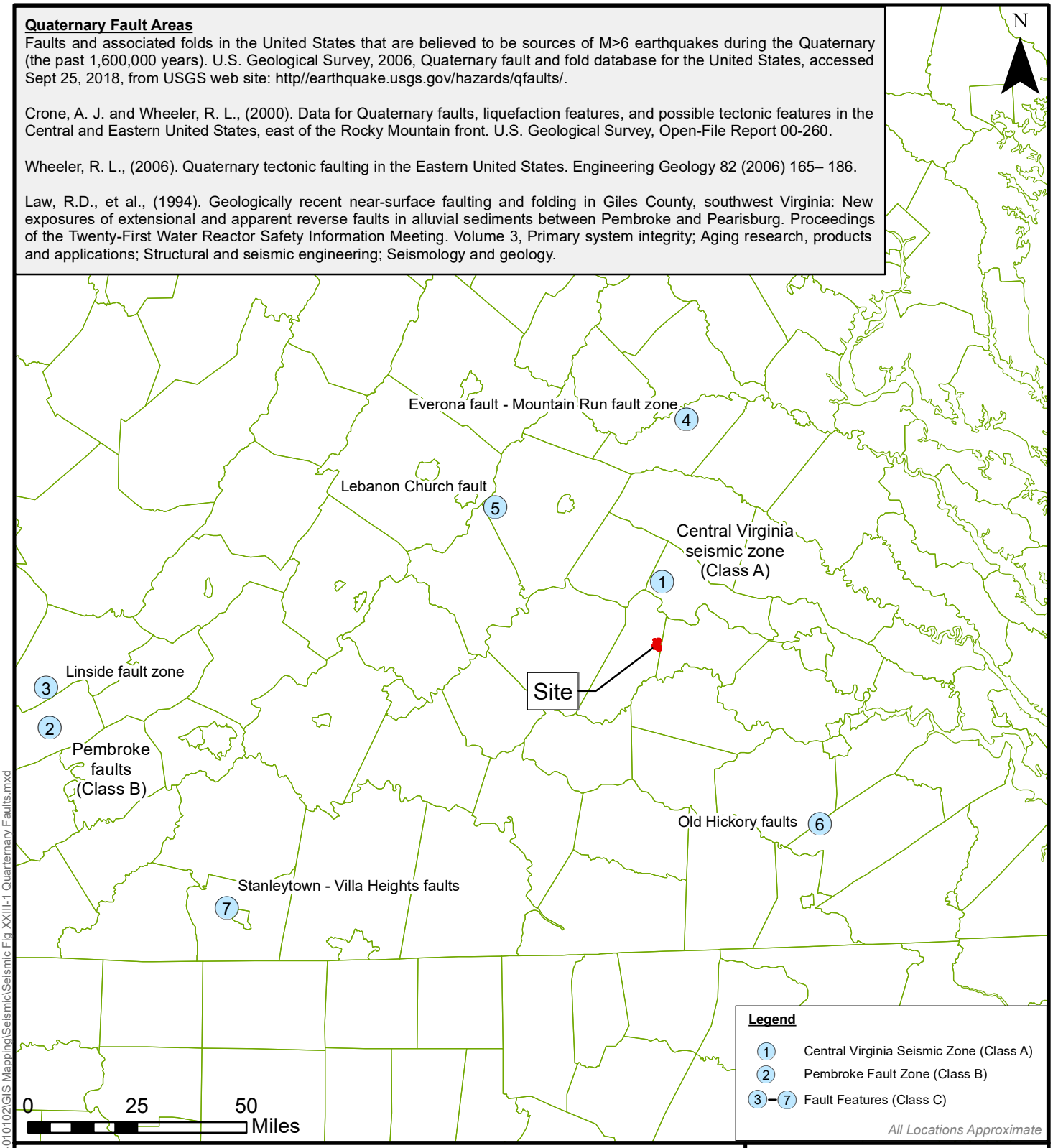


Quaternary Age Fault or Possible Fault Features

Green Ridge Recycling and Disposal Facility
Cumberland Co., Virginia

SCALE: 1:2,000,000

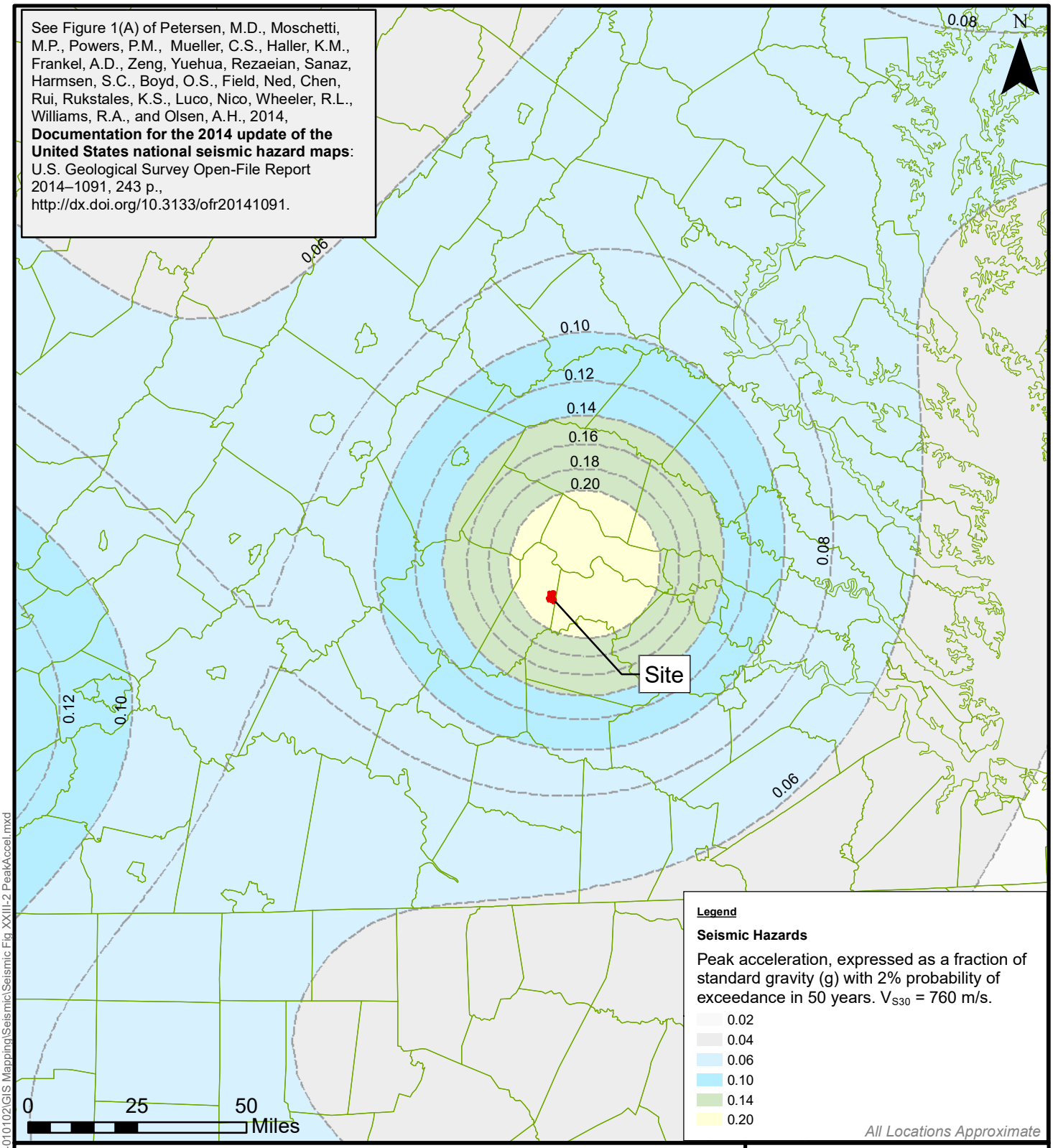
PROJECT: 18020117-010102

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia

DESIGNED: WDN
DRAWN: SMF
CHECKED: KEB
DATE: 12-09-19

FIGURE
XXIII-1

Path: P:\2018\1802\010\00\18020117\18020117-010102\GIS Mapping\Seismic\Seismic Fig XXIII-1 Quarternary Faults.mxd



Seismic Hazards:
Probabilistic Peak Ground Acceleration

Green Ridge Recycling and Disposal Facility
Cumberland Co., Virginia

SCALE: 1:2,000,000

PROJECT: 18020117-010102

Draper Aden Associates
Engineering ◆ Surveying ◆ Environmental Services
2206 South Main Street
Blacksburg, VA 24060
540-552-0444 Fax: 540-552-0291
Richmond, VA
Charlottesville, VA
Hampton Roads, VA
Raleigh, NC
Fayetteville, NC
Northern Virginia

DESIGNED: WDN
DRAWN: SMF
CHECKED: KEB
DATE: 12-09-19

FIGURE
XXIII-2

Path: P:\2018\1802\010\00\18020117\18020117-010102\GIS Mapping\Seismic\Seismic Fig XXIII-2 PeakAccel.mxd